REPÚBLICA DE COLOMBIA
AERONÁUTICA CIVIL
Unidad Administrativa Especial

5101.193 - 2016004252
Bogotá, 05 de febrero de 2016

Capitán
CARLOS ALBERTO MISAS NAVAS
Director de Operaciones
AEROVIAS DE INTEGRACIÓN NACIONAL AIRES S.A. /LATAM AIRLINES COLOMBIA
Transversal 93 N° 51-98, Bodega 24
BOGOTA

Asunto: **RESPUESTA AL RADICADO 2016008592 DE 03 DE FEBRERO DE 2016, ACEPTACIÓN REVISIÓN MANUAL QUICK REFERENCE HANDBOOK A-320, CON FECHA 01 DE DICIEMBRE DE 2015.**

Respetado Capitán:

Por medio de la presente atentamente, se acepta la revisión que se menciona en el radicado del asunto.

La presente aceptación deberá ser insertada en la portada del correspondiente manual, una copia digital deberá ser radicada para aceptación de envió a la biblioteca técnica de la UAEAC, para su actualización.

Atentamente,

POLIDORO CASTAÑEDA CAICEDO
Inspector de Seguridad Aerea

Proyectó: Polidoro Castañeda Caicedo. Inspector de Seguridad Aérea.
Ruta electrónica: \\Bog7\adi\Externo\2016004252

QUICK REFERENCE HAND BOOK

CC-BAR

A320-214
MSN 4892

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Issue date: 01 DEC 15

This is the QUICK REFERENCE HAND BOOK at issue date 01 DEC 15 for the A320 and replacing last issue dated 09 JUL 15

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

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Please incorporate this revision as follow:

	Localization Subsection Title	Remove	Insert Rev. Date
	PLP-LESS **LIST OF EFFECTIVE SECTIONS/SUBSECTIONS**	ALL	01 DEC 15
*	PLP-LEDU **LIST OF EFFECTIVE DOCUMENTARY UNITS**	ALL	01 DEC 15
*	GEN-PLP-TOC **TABLE OF CONTENTS**	ALL	01 DEC 15
*	GEN-PLP-SOH **SUMMARY OF HIGHLIGHTS**	ALL	01 DEC 15
	GEN **General**	ALL	01 DEC 15
	ABN-PLP-TOC **TABLE OF CONTENTS**	ALL	01 DEC 15
*	ABN-PLP-SOH **SUMMARY OF HIGHLIGHTS**	ALL	01 DEC 15
	ABN-24 **Electrical**	ALL	01 DEC 15
	ABN-26 **Fire Protection**	ALL	01 DEC 15
	ABN-27 **Flight Controls**	ALL	01 DEC 15
	ABN-29 **Hydraulic**	ALL	01 DEC 15
	ABN-32 **Landing Gear**	ALL	01 DEC 15
	ABN-34 **Navigation**	ALL	01 DEC 15
	ABN-36 **Pneumatic**	ALL	01 DEC 15
	ABN-70 **Engines**	ALL	01 DEC 15
	ABN-80 **Miscellaneous**	ALL	01 DEC 15
	ABN-100 **EFB**		01 DEC 15
	NP-PLP-TOC **TABLE OF CONTENTS**	ALL	01 DEC 15
*	NP-PLP-SOH **SUMMARY OF HIGHLIGHTS**	ALL	01 DEC 15
	NP-NP **Normal Procedures**	ALL	01 DEC 15
	PER-PLP-TOC **TABLE OF CONTENTS**	ALL	01 DEC 15
*	PER-PLP-SOH **SUMMARY OF HIGHLIGHTS**	ALL	01 DEC 15
	PER-C **Landing Performance Assessment**	ALL	01 DEC 15
	OPS-PLP-TOC **TABLE OF CONTENTS**	ALL	01 DEC 15
*	OPS-PLP-SOH **SUMMARY OF HIGHLIGHTS**	ALL	01 DEC 15
	OPS **Operational Data**	ALL	01 DEC 15
	OEBPROC-PLP-LEOEB **LIST OF EFFECTIVE OPERATIONS ENGINEERING BULLETIN**	ALL	01 DEC 15
*	OEBPROC-PLP-SOH **SUMMARY OF HIGHLIGHTS**	ALL	01 DEC 15
	OEBPROC-48 **Abnormal V Alpha Prot**		01 DEC 15

** Preliminary pages that may be removed from the QRH binder*

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M(1)	Localization	Subsection Title	Rev. Date
R	PLP-LESS	**LIST OF EFFECTIVE SECTIONS/SUBSECTIONS**	01 DEC 15
	PLP-LETDU	**LIST OF EFFECTIVE TEMPORARY DOCUMENTARY UNITS**	01 OCT 14
R	GEN	**General**	01 DEC 15
	ABN-21	**Air Conditioning/Ventilation/Pressurization**	15 AUG 14
	ABN-22	**Auto Flight**	01 OCT 14
R	ABN-24	**Electrical**	01 DEC 15
	ABN-25	**Equipment**	15 AUG 14
R	ABN-26	**Fire Protection**	01 DEC 15
R	ABN-27	**Flight Controls**	01 DEC 15
	ABN-28	**Fuel**	01 OCT 14
R	ABN-29	**Hydraulic**	01 DEC 15
	ABN-30	**Ice and Rain Protection**	15 AUG 14
	ABN-31	**Indicating / Recording Systems**	01 OCT 14
R	ABN-32	**Landing Gear**	01 DEC 15
R	ABN-34	**Navigation**	01 DEC 15
R	ABN-36	**Pneumatic**	01 DEC 15
R	ABN-70	**Engines**	01 DEC 15
R	ABN-80	**Miscellaneous**	01 DEC 15
N	ABN-100	**EFB**	01 DEC 15
R	NP-NP	**Normal Procedures**	01 DEC 15
N	NP-NCL	**Normal Checklist**	01 DEC 15
	PER-A	**Speeds**	01 OCT 14
	PER-B	**Fuel Penalty Factors**	15 AUG 14
R	PER-C	**Landing Performance Assessment**	01 DEC 15
	PER-D	**Landing Distance without Failure**	01 OCT 14
	PER-24	**Landing Distance with Electrical System Failure**	01 OCT 14
	PER-27	**Landing Distance with Flight Controls System Failure**	01 OCT 14
	PER-27A	**Landing Distance with Slats Flaps System Failure**	01 OCT 14
	PER-29	**Landing Distance with Hydraulic System Failure**	01 OCT 14
	PER-30	**Landing Distance with Anti Ice System Failure**	01 OCT 14
	PER-32	**Landing Distance with Brake System Failure**	01 OCT 14
	PER-34	**Landing Distance with Navigation System Failure**	01 OCT 14
	PER-36	**Landing Distance with Bleed System Failure**	01 OCT 14
	PER-70	**Landing Distance with Engine System Failure**	01 OCT 14
	PER-E	**One Engine Inoperative**	01 OCT 14
	PER-G	**All Engines Operative**	01 OCT 14
	PER-H	**Flight Without Cabin Pressurization**	01 OCT 14
	PER-I	**Miscellaneous**	15 AUG 14
R	OPS	**Operational Data**	01 DEC 15
R	OEBPROC-PLP-LEOEB	**LIST OF EFFECTIVE OPERATIONS ENGINEERING BULLETIN**	01 DEC 15

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

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M (1)	Localization	DU Title	DU identification	DU date
	ABN-31	**Multiple Undue ECAM Alerts**	00013755.0001001	08 FEB 13
	Criteria: P8671, P9824 *Impacted DU: NONE*			
	Reason for issue: *This Temporary Revision is issued to give a procedure to the crew in the case of multiple suspected undue ECAM alerts.*			

R	ABN-80	**Computer Reset Table**	NG00824	
	ABN-80	**Computer Reset Table - 21 - Air Conditioning/Ventilation/Pressurization**	00013737.0002001	24 MAR 14
	Criteria: K10463, K6443, K9458 *Impacted DU: 00010908 Computer Reset Table - 21 - Air Conditioning/Ventilation/Pressurization*			
	Reason for issue: *This Temporary DU is issued for aircraft with the Air Conditioning System Controller 1803B0000-02, in order to provide Operators with the ACSC C/B reset procedure to apply in the case of a "PACK REGUL FAULT" triggered on ground.*			
	ABN-80	**Computer Reset Table - 23 - Communications**	00013850.0024001	21 AUG 13
	Criteria: K12824, K12825, K3901, K8400, SA *Impacted DU: 00010910 Computer Reset Table - 23 - Communications*			
	Reason for issue: *CIDS Director Hardware 333B and On Board Replacement Module (OBRM) 33A are sensitive to short power supply interruptions. These power supply interruptions occur when the aircraft is supplied by external power. As a consequence, ECAM caution "COM CIDS 1+2 FAULT" or CIDS Maintenance status 'CIDS 1' or 'CIDS 2' could be spuriously triggered. In such event, the flight crew should verify that the CIDS is functioning normally by checking the PA, Cabin Interphone and Cabin lighting function. If the ECAM caution is spurious, it can be removed by resetting the CIDS when the aircraft is powered by the APU.*			
	ABN-80	**Computer Reset Table - 32 - Landing Gear**	00014916.0001001	25 NOV 13
	Criteria: SA *Impacted DU: 00014915 Computer Reset Table - 32 - Landing Gear*			
	Reason for issue: *The BSCU reset procedure for WHEEL N/W STRG FAULT is amended with a temporary procedure, in order to better address the spurious alerts that are currently encountered in-service.* - *Under the very specific conditions defined in the procedure, the flight crews can continue the flight without troubleshooting after a successful BSCU reset.* - *For aircraft with BSCU standard 10: The root cause of the spurious alerts that were triggered during taxiing with BSCU standard 10 has been cancelled. Therefore, the associated reset procedure has been removed.* - *The BSCU reset procedure for BRAKES SYS FAULT or BRAKES BSCU CH FAULT is amended in order to improve the wording to comply with Aircraft behavior.*			

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

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

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

M(1)	MSN	FSN	Registration Number	Model
	4892		CC-BAR	320-214

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

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M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	P1872		30 AUG 10	AIR CONDITIONING - INSTALL CIRCUIT BREAKER FOR REAR CARGO COMPT VALVE SUPPLY FOR EROPS -
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	P10762		07 APR 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2C12 (RELEASE 1A) ON CFM A/C
	P8564		30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	P8671		07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	P7519		07 APR 11	AUTOFLIGHT-FMGC-INSTALL FMGC CFM C13042AA01 (EQUIPPED WITH FMS2) HONEYWELL
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	P5613		30 AUG 10	NAVIGATION - TCAS - INSTALL COLLINS TCAS TTR921 WITH COLLINS ATC TPR901
	P5071		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	P4885		30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	P9171	34-1397 04	30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	P0160		30 AUG 10	OXYGEN - FLIGHT CREW OXYGEN - INSTALL A 115 CU/FT STEEL OXYGEN CYLINDER -
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	K6443		07 APR 11	AIR CONDITIONING-AIR COOLING- INSTALL A NEW ECS
	K2450	49-1029 27	30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	J2361	28-1150 01	30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION

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M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4642		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE DUAL PREDICTIVE WINDSHEAR FUNCTION
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	P5895		30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	P5168		30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	P4230		07 APR 11	POWER PLANT-GENERAL-INTRODUCE CFM56-5B/P
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	P10281		30 AUG 10	AUTO-FLIGHT - FMGC - REPLACE STD THALES FMS AND ASSOCIATED S/W BY OPTIONALHWL FMS AND ASSOCIATED S/W ON A318 PW
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	P9907		30 AUG 10	INDICATING RECORDING SYSTEM - FLIGHT WARNING COMPUTER (FWC)- INSTALL FWC STANDARD H2-F4
	P9354		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - REMOVE WXR TRANSCEIVER HNWL -0409 AND DEACTIVATE PWS (ANTI-MOD 33251/26194)
	K8600		30 AUG 10	COMMUNICATION -CABIN INTERCOMMUNICATION DATA SYSTEM (CIDS) - IMPROVE THE A318 CIDS EQUIPMENT
	K6431		30 AUG 10	FUSELAGE - CENTER FUSELAGE - ADAPT INTERFACES AND ASSEMBLING OF SECTION 15/21 TO 17/19 TO A318 DEFINITION
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P

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M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P5669		30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	P4502		30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	P4319		30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	P3112		30 AUG 10	NAVIGATION - INSTALL A TCAS II COLLINS SYSTEM
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	P11256		30 MAY 13	NAVIGATION - GENERAL - CERTIFY RNP AR CAPABILITY (STEP3) ON A320 AND A318
	P10530		30 MAY 13	NAVIGATION - GENERAL - MODIFY FLIGHT MANUAL TO EXTEND RNP SAAAR RNAV CAPABILITY (STEP 2+)
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	P10383	31-1334 04	30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	K9458		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL IMPROVED AIR COND. SYSTEM CONTROLLER PN 1803B0000-01
	K9234		30 AUG 10	EQUIPMENT/FURNISHINGS-MISC. EMERGENCY EQUIPMENT-INSTALL ELT (406AF) WITH RCP IN COCKPIT ON ENH. PROV. - ELTA
	P9873		07 APR 11	POWER PLANT - GENERAL - INTRODUCE CFM56-5BX/3 ENGINE (SAC) "TECH INSERTION PROGRAM"
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	P9593		30 MAY 13	0.18 RNAV CAPABILITY (STEP 2)
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	P8710		07 APR 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	K6156		30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	K12825		29 JUL 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	K12824		29 JUL 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	K10463		30 MAY 13	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	K0070	21-1047 05	30 AUG 10	AIR CONDITIONING - CARGO COMPARTMENT - VENTILATION - INSTALL SYSTEM IN AFT COMPARTMENT -
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS

Continued from the previous page

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-

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

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Localization Title	Page	ID	Reason
GEN Important - Task Sharing for Abnormal/Emergency Procedures	GEN.01A	1	The abbreviation "PNF" is replaced by "PM" (Pilot Monitoring). No other technical change.
GEN Important - Abnormal/Emergency Procedures Initiation	GEN.01A	2	Addition of operational recommendations if the conditions for the application of a QRH procedure disappear.
GEN Important - Normal Checklist	GEN.01A	3	The abbreviation "PNF" is replaced by "PM" (Pilot Monitoring). No other technical change.
GEN General Information - Preliminary Pages within the QRH Binder	GEN.03A	4	Revision of the General Information part of the QRH to highlight that the QRH transmittal letter and the QRH List of Effective Preliminary Pages (LEPP), delivered at fleet level, do not need to be inserted in the QRH binder.

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IMPORTANT

SCOPE

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

1 TASKSHARING FOR ABN/EMER PROC

For all abnormal/emergency procedures, the tasksharing is as follows :

- PF - Pilot flying - Responsible for the :
  - Thrust levers
  - Flight path and airspeed control
  - Aircraft configuration (request configuration change)
  - Navigation
  - Communications
- PM - Pilot Monitoring - Responsible for the :
  - Monitoring and reading aloud the ECAM and checklists
  - Performing required actions or actions requested by the PF, if applicable
  - Using engine master switches, cockpit C/Bs, IR and guarded switches with PF's confirmation (except on ground).

ECAM CLEAR

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

2 ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until :

- The appropriate flight path is established, and
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go-around. (In some emergency cases, provided the appropriate flight path is established, the pilot flying may initiate actions before this height).

The flight crew can stop the procedure if the conditions for the application of the QRH procedure disappear.

3 NORMAL CHECKLIST

Normal C/L are initiated by the PF and read by the PM.
The PF shall respond after having checked the existing configuration. When both pilots have to respond, "BOTH" is indicated.

DEFINITIONS OF WARNINGS, CAUTIONS AND NOTES

The following are the official definitions of warnings, cautions and notes taken directly from the JAR25/CS-25 and applicable to Airbus flight operation documentation:

WARNING	An operating procedure, technique, etc. that may result in personal injury or loss of life if not followed.
CAUTION	An operating procedure, technique, etc. that may result in damage to equipment if not followed.
NOTE	An operating procedure, technique, etc. considered essential to emphasize. Information contained in notes may also be safety related.

GENERAL INFORMATION

QRH REVISION DATE

The update of the FCOM does not necessarily result in the update of the QRH. Therefore, the revision dates of the QRH and of the FCOM may differ.

EFFECTIVITY

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

PAGE NUMBERING

The page numbering follows the following rules:

01A, 02A, 02B,.. : Numbering and Index (A, B, ...) for GEN, ABN, OPS, OEB PROC sections

Note: For these sections, the procedures start with the index A and for long procedures (more than one page), the index continues with B, C...

1/10, 3/5, ... : Numbering for NP-NP, PER

C1, C2 : Back cover page interior

C3 : Back cover page exterior

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4 **PRELIMINARY PAGES WITHIN THE QRH BINDER**

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

- The transmittal letter
- The List of Effective Preliminary Pages (LEPP)
- The Filing Instructions (FI)
- The List of Effective Documentary Units (the LESS is the reference)
- The List Of Modifications (LOM)
- The Summary Of Highlights (SOH)
- The front pages of all QRH sections
- The Table Of Contents (TOC) of the General section

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Localization Title	Page	ID	Reason
ABN-PLP-TOC ELEC EMER CONFIG Sys Remaining	1/4	1	Documentation update: Deletion of the "00010805.0001001 ELEC EMER CONFIG Sys Remaining - 49 - APU" documentary unit.
ABN-PLP-TOC Landing Gear	2/4	2	Documentation update: Deletion of the "00010836.0013001 L/G Gravity Extension" documentary unit.
			Documentation update: Deletion of the "00010838.0003001 Landing with Abnormal L/G" documentary unit.
ABN-PLP-TOC ECAM Advisory Conditions	3/4	3	Documentation update: Deletion of the "00010925.0009001 ECAM Advisory Conditions - 35 - Oxygen" documentary unit.
ABN-PLP-TOC Computer Reset Table	3/4	4	Documentation update: Deletion of the "00010914.0001001 Computer Reset Table - 28 - Fuel" documentary unit.
ABN-24 ELEC EMER CONFIG Sys Remaining - 49 - APU	24.01B	1	Documentation update: Addition of "ELEC EMER CONFIG Sys Remaining - 49 - APU" documentary unit
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02A	2	Introduction of the reference to the LDG PERF application of FlySmart with Airbus for the landing performance assessment.
ABN-26 SMOKE/FIRE FROM LITHIUM BATTERY	26.03A	1	Documentation update: Addition of "SMOKE/FIRE FROM LITHIUM BATTERY" documentary unit
ABN-27 Landing with Slats or Flaps Jammed	27.01A	1	Introduction of the reference to the LDG PERF application of FlySmart with Airbus for the landing performance assessment.
ABN-27 Sidestick / Rudder Pedals Stiff	27.03A	2	The abbreviation "PNF" is replaced by "PM" (Pilot Monitoring). No other technical change.
ABN-27 Stop Rudder Input	27.06A	3	Documentation update: Addition of "Stop Rudder Input" documentary unit
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01A	1	Introduction of the reference to the LDG PERF application of FlySmart with Airbus for the landing performance assessment.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02A	2	Introduction of the reference to the LDG PERF application of FlySmart with Airbus for the landing performance assessment.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03A	3	Introduction of the reference to the LDG PERF application of FlySmart with Airbus for the landing performance assessment.
ABN-32 L/G Gravity Extension	32.03A	1	Documentation update: Addition of "L/G Gravity Extension" documentary unit
ABN-32 Landing with Abnormal L/G	32.04A	2	Documentation update: Addition of "Landing with Abnormal L/G" documentary unit
ABN-34 ADR CHECK PROC	34.01A	1	Simplification of the sentence in order to enhance the readability.
ABN-34 ALL ADR OFF - FWS PAGE	34.02A	2	Revision of the list of INOP SYS on ECAM: addition of “YAW DAMPER”.
ABN-80 Bomb on Board / CONCEALED WEAPONS	80.02A	1	**Procedure changed according to Airline policies.**
ABN-80 Bomb on Board / CONCEALED WEAPONS	80.02A	2	**Procedure changed according to Airline policies.**
ABN-80 Bomb on Board / CONCEALED WEAPONS	80.02B	3	**Procedure changed according to Airline policies.**
ABN-80 Ditching	80.03A	4	Addition of “Turn on ELT”. The procedure is updated to add “When conditions permit: Turn on ELT”. An earlier ELT activation may enable to anticipate Search And Rescue operations (SAR).
ABN-80 Forced Landing	80.04A	5	Addition of “Turn on ELT”. The procedure is updated to add “When conditions permit: Turn on ELT”. An earlier ELT activation may enable to anticipate Search And Rescue operations (SAR).
ABN-80 EMER DESCENT	80.05A	6	Change of the word "massage" to "message"
ABN-80 Stall Recovery	80.08A	7	**Modification of the indentation of the last note in order to apply to the whole procedure "When out of stall".**
ABN-80 Volcanic Ash Encounter	80.10A	8	Update of the link in order to remove the reference to the "ADR Check Proc".

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Localization Title	Page	ID	Reason
ABN-80 Windshear Ahead	80.12A	9	Introduction of the reference to the LDF PERF application of FlySmart with Airbus for the landing performance assessment.
ABN-80 ECAM Advisory Conditions - 35 - Oxygen	80.15A	10	Documentation update: Addition of "ECAM Advisory Conditions - 35 - Oxygen" documentary unit
ABN-80 ECAM Advisory Conditions - 70 - Engines	80.15A	11	Documentation update: Deletion of information. Deletion of Note about vibration advisory threshold. This functionality is removed.
ABN-80 Computer Reset - Procedure	80.17A	12	The abbreviation "PNF" is replaced by "PM" (Pilot Monitoring). No other technical change.
ABN-80 Computer Reset Table - 22 - Auto Flight	80.18B	13	In the “Manual FMGS Reset” procedure, addition of the possibility to do the reset with engines OFF, in case the FMGS reset was unsuccessful.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.18G	14	Documentation update: Deletion of text. Update of the WARNING. Update of the WARNING.
ABN-80 Computer Reset Table - 28 - Fuel	80.18G	15	Documentation update: Addition of "Computer Reset Table - 28 - Fuel" documentary unit
ABN-80 Computer Reset Table - 36 - Pneumatic	80.18K	16	**Introduction of a reset procedure of the ENG BLEED in the case of AIR ENG 1(2) BLEED NOT CLSD alert on ground only.**
ABN-80 Emergency Evacuation	80.NA	17	**Added new DU "EMERGENCY EVACUATION" and "BRIEFINGS".**
ABN-100 One EFB Failure during Flight	1/2	1	Documentation update: Addition of "One EFB Failure during Flight" documentary unit
ABN-100 Two EFB Failures during Flight	1/2	2	Documentation update: Addition of "Two EFB Failures during Flight" documentary unit

CABIN OVERPRESSURE

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

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

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

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

CAUTION	Check that ΔP is zero before opening the doors.

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

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

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

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

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

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

Fly in selected speed.

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

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

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

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

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

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

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ELEC EMER CONFIG SYS REMAINING

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

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

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

(b) Crew oxygen valve inoperative.

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

(d) Lost 30 s after last engine shutdown.

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

(f) For APU start only.

(g) Not available for 45 s, after the loss of both engine generators.

(h) Channels A and B are self-powered above 12 % N2. If N2 is below 12 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

2 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK UNUSABLE.
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, *Refer to QRH PER-C*, or use the LDG PERF application of FlySmart with Airbus.

APPROACH

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

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

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

GO-AROUND

- **When L/G uplocked:**

ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

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

CKPT DOOR CONT panel ..... CHECK

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

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

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

  The system may be recovered by performing the following steps:

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

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

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

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

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

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

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SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

- **IF REQUIRED:**
  CREW OXY MASKS..... USE/100%/EMERG
  BLOWER..... OVRD
  EXTRACT..... OVRD
  CAB FANS.....OFF
  GALY & CAB..... OFF
  SIGNS.....ON
  CKPT/CAB COM..... ESTABLISH
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATED:**
  DIVERSION..... INITIATE
  DESCENT ..... INITIATE
  Descent to FL 100, or MEA-MORA, or minimum obstacle clearance altitude

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

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

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

AIR COND SMOKE/CAB EQUIPMENT SMOKE

● **IF AIR COND SMOKE SUSPECTED:**
APU BLEED.....OFF
BLOWER.....AUTO
EXTRACT.....AUTO
CARGO AFT ISOL VALVE.....OFF
PACK 1.....OFF

● **If smoke continues:**
PACK 1.....ON
PACK 2.....OFF

● **If smoke still continues:**
PACK 2.....ON
BLOWER.....OVRD
EXTRACT.....OVRD

REMOVAL OF SMOKE/FUMES.....CONSIDER

● **IF CAB EQUIPMENT SMOKE SUSPECTED:**

● **If smoke continues:**
EMER EXIT LIGHT.....ON
COMMERCIAL.....OFF
SMOKE DISSIPATION.....CHECK
FAULTY EQPT.....SEARCH/ISOLATE

● **If smoke still continues or if faulty equipment confirmed isolated:**
COMMERCIAL.....NORM

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

REMOVAL OF SMOKE/FUMES..... CONSIDER

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

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

TO SET ELEC EMER CONFIG

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

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

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

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

REMOVAL OF SMOKE/FUMES

EMER EXIT LIGHT..... ON

● **If fuel vapors:**

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

● **If no fuel vapors:**

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

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

● **At FL 100 OR MEA-MORA:**

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

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

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

REMOVAL OF SMOKE/FUMES (Cont'd)

● **When window is open:**

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

SMOKE/FIRE FROM LITHIUM BATTERY

If necessary, transfer control to the flight crew member seated on the opposite side of the fire

CKPT/CAB COM.....ESTABLISH
STORAGE AFTER Li BAT FIRE cabin procedure.....
.....REQUEST INITIATION

- **If there are flames:**
  CREW OXY MASK (PF).....USE
  SMOKE HOOD (PM).....USE
  HALON EXTINGUISHER.....USE
- **If there are no flames or when flames are extinguished:**
  - **If not possible to remove device from the cockpit:**
    WATER or NON-ALCOHOLIC LIQUID.....
    .....POUR ON DEVICE
    DEVICE..... MONITOR
  - **If possible to remove device from the cockpit:**
    DEVICE.....TRANSFER TO CABIN

- **AT ANY TIME of the procedure, if SMOKE becomes the GREATEST THREAT:**
  REMOVAL OF SMOKE/FUMES procedure.....
  .....CONSIDER

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

LANDING WITH SLATS OR FLAPS JAMMED

LANDING CONF.....DETERMINE

Refer to QRH PER-27A Landing Distance with Slats and Flaps System Failure, or use the LDG PERF application of FlySmart with Airbus.

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

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

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

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

  As speed reduces through VFE NEXT:

  FLAPS LEVER.....ONE STEP DOWN

- **When landing configuration is established:**

  DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

FOR GO AROUND

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

- **If SLATS FAULT:**
  - **For circuit:**

    MAINTAIN SLATS/FLAPS CONFIGURATION

    Recommended speed: MAX SPEED - 10 kt
  - **For diversion:**

    SELECT CLEAN CONFIGURATION

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

    Recommended diversion speed: MAX SPEED - 10 kt.
- **If FLAPS FAULT:**
  - **For circuit:**

    MAINTAIN SLATS/FLAPS CONFIGURATION

    Recommended speed: MAX SPEED - 10 kt

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

- **For diversion:**
  - **If FLAPS jammed at 0:**

    SELECT CLEAN CONFIGURATION

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

    Normal operating speeds

  - **If FLAPS jammed > 0:**

    MAINTAIN SLAT/FLAP CONFIGURATION

    Recommended speed for diversion: MAX SPEED - 10 kt

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

MAX SPEED					
Flaps / Slats	F = 0	0 < F ≤ 1	1 < F ≤ 2	2 < F ≤ 3	F > 3
S = 0	NO LIMITATION	215 kt	200 kt	185 kt	177 kt (Not allowed)
0 < S < 1	230 kt				
S = 1					177 kt
1 < S ≤ 3	200 kt		200 kt	185 kt	
S > 3	177 kt		177 kt	177 kt	177 kt

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

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SIDESTICK / RUDDER PEDALS STIFF

2

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

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

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

AP DISENGAGEMENT..... CONFIRM

CONSIDER TRANSFERRING CONTROL TO PM

- **For decrab, rollout, or engine failure:**

  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

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

FOR APPROACH

AVOID LANDING WTH CROSSWIND from the side where the rudder is deflected.
MAX CROSSWIND for LDG 15 kt
AUTO BRK.....DO NOT USE
FOR LANDING.....USE NORMAL CONF
SPEED AND TRAJECTORY..... STABILIZE ASAP
LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING..... USE ASAP
Do not use asymmetric reverse thrust.
Use nosewheel steering handle below 70 kt.

STABILIZER JAM

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

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

- **If MAN TRIM available:**

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

APPR PROC

- **If MAN TRIM not available:**

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

  CAT 2 INOP

STOP RUDDER INPUT

3

The "STOP RUDDER INPUT" synthetic voice associated with MASTER WARNING light is triggered when inappropriate rudder inputs are detected. These alerts advise the flight crew to avoid excessive rudder load.

CAUTION	Avoid large and rapid rudder inputs.

"STOP RUDDER INPUT"

Release immediately the rudder pedals.

Intentionally left blank

FUEL IMBALANCE

FOB..... CHECK

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

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

FUEL X FEED..... ON

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

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wingtip/sharklet, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.
- The destination EFOB turns to amber on the F.PLN (or on the FUEL PRED) page, or
- ″DEST EFOB BELOW MIN″ appears on the MCDU scratchpad.

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

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ Leak from engine/pylon confirmed:

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

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD
If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ Leak from engine/pylon not confirmed or leak not located:

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

FUEL X FEED..... MAINTAIN CLOSED
The crossfeed valve must remain closed to prevent the leak from affecting both sides.
CTR TK PUMP 1+2..... OFF
Each engine is fed via its associated inner tank only.
INNER TANK FUEL QUANTITIES..... MONITOR
Monitor the depletion rate of each inner tank.

■ CASE 1: If one inner tank depletes faster than the other by at least 300 kg (660 lb) in less than 30 min:

An engine leak may still be suspected. Therefore:

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

● If leak stops:

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

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

FUEL LEAK (Cont'd)

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

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

  ENGINE RESTART.....CONSIDER

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

■ **CASE 2: If both inner tanks deplete at a similar rate:**

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

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

  APU (if ON).....OFF

  This prevents additional fuel loss through the APU feeding line.

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

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

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR
DETERMINE GRAVITY FEED CEILING

Consult the following table to determine the flight altitude limitation.

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

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

DESCEND TO GRAVITY FEED CEILING (if applicable).

- **When reaching gravity feed ceiling:**
  FUEL X FEED.....OFF
- **If no fuel leak and for aircraft handling:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following:

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

  - **When fuel imbalance reaches 1 000 kg (2 200 lb):**
    BANK ANGLE..... 2 °or 3 ° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (*Refer to QRH PER-B*)
For **Landing Performance** assessment, *Refer to QRH PER-C*, or use the LDG PERF application of FlySmart with Airbus.

APPROACH

CAT 2 INOP
SLATS SLOW/FLAPS SLOW

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

LANDING

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

GO-AROUND

NO GEAR RETRACTION
FUEL: Increased fuel consumption (*Refer to QRH PER-B*)

HYD G + B SYS LO PR SUMMARY

CRUISE

2 SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (*Refer to QRH PER-B*)
For **Landing Performance** assessment, *Refer to QRH PER-C*, or use the LDG PERF application of FlySmart with Airbus.

APPROACH

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

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

LANDING

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

GO-AROUND

NO GEAR RETRACTION
FUEL: Increased fuel consumption (*Refer to QRH PER-B*)

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

HYD G + Y SYS LO PR SUMMARY

CRUISE

3 MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (*Refer to QRH PER-B*)
For **Landing Performance** assessment, *Refer to QRH PER-C*, or use the LDG PERF application of FlySmart with Airbus.

APPROACH

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

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

LANDING

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

GO-AROUND

NO GEAR RETRACTION
FUEL: Increased fuel consumption (*Refer to QRH PER-B*)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Maintain speed close to VAPP (due to pitch trim unusable)
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Maintain speed close to VAPP (due to pitch trim unusable)

Continued from the previous page

GO-AROUND

■ **If Flaps jammed above zero:**

MAINTAIN SLATS/FLAPS CONFIG

Maintain speed close to VAPP (due to pitch trim unusable)

DOUBLE AOA HEAT FAILURE

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

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DISPLAY UNIT FAILURE

■ Affected DU flashes intermittently:

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

■ If the captain side is affected:

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

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

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

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

APU START..... CONSIDER

■ If the first officer side is affected:

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

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

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

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

APU START..... CONSIDER

■ DU is blank (with or without a large letter “F” in amber), or the display is distorted:

DU (affected).....AS RQRD

The DU can be switched off.

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

Transfer SD to the F/O or CAPT ND.

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

■ INVALID DISPLAY UNIT message is displayed:

This may be caused by a DU failure.

FOR AUTOMATIC DU RECOVERY.....WAIT MORE THAN 40 s

DISPLAY UNIT FAILURE (Cont'd)

- **If DU is automatically recovered:**
  No crew action is required.
- **If DU is not recovered:**
  Non-recovered DU..... AS RQRD
  The DU can be switched off.

■ **INVALID DATA message appears (not on all DUs):**
EIS DMC SWITCHING..... AS RQRD

- **If unsuccessful:**
  DU (affected)..... OFF THEN ON

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

■ **INVALID DATA message appears on all DUs:**
The autopilot, autothrust and MCDU navigation data are still available, and may be used.

FOR AUTOMATIC DUs RECOVERY ..... WAIT MORE THAN 40 s

- **IF all DUs are automatically recovered:**
  No crew action is required.
- **If one or more DUs are not recovered:**
  Non-recovered DUs.....OFF FOR 40 s
  Non-recovered DUs..... BACK ON sequentially
  - **If the initial failure re-occurs (INVALID DATA message appears on all DUs), when switching a given DU back ON:**
    Apply the entire procedure again, from the beginning.
    Leave this specific DU permanently OFF.

■ **Inversion of the EWD and the SD:**
ECAM UPPER DISPLAY .....OFF THEN ON
The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

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

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **Overflow on the STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

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

MULTIPLE UNDUE ECAM ALERTS

In the case of multiple undue ECAM alerts concerning:
- ENG 1(2) N1(N2) (EGT) (FF) OVER LIMIT or
- ENG 1(2) N1(N2) (EGT) (EPR) (FF) DISCREPANCY or,
- NAV ATT(ALT) (HDG) DISCREPANCY or,
- NAV FM/GPS POS DISAGREE or,
- FUEL F.USED/FOB DISAGREE or,
- MINIMUM or HUNDRED ABOVE callouts,

possibly associated with EFIS red flags, apply the below procedure:

AFFECTED PARAMETERS.....CROSSCHECK

Crosscheck the affected parameters on the E/WD, PFD, ND or on the related SD page to confirm that the alerts are spurious.

- **If it is confirmed that the ECAM alerts are spurious, identify the faulty DMC:**

  EIS DMC SWITCH.....CAPT 3

  DMC 3 replaces DMC 1. If the undue alerts stop, DMC 1 is the faulty DMC.

  - **If unsuccessful:**

    EIS DMC SWITCH.....F/O 3

    DMC 3 replaces DMC 2. If the undue alerts stop, DMC 2 is the faulty DMC.

LOSS OF BRAKING

- **If no braking available:**

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

  - **If still no braking:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING

- **In flight:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

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

  - **If residual pressure remains:**

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

    - **If autobrake is available:**

      FOR LANDING.....AUTO/BRK MED

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

    - **If autobrake is not available:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

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

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

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

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

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

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible GPWS "TOO LOW GEAR" aural alert.

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

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

L/G lever .....DOWN

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

Note:

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

■ If successful:

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

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

■ If unsuccessful:

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

LANDING WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALY & CAB pb-sw.....OFF
Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**
  CG location (if possible).....AFT
  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**
  FUEL IMBALANCE.....CONSIDER
  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE
- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

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

- **If one or both MAIN L/G abnormal:**
  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

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

- **If the external light condition is poor at landing:**
  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.

LANDING WITH ABNORMAL L/G (Cont'd)

Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

REVERSE..... DO NOT USE

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

  NOSE..... MAINTAIN UP

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

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

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

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

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

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

  DIRECTIONAL CONTROL.....MAINTAIN

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

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

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

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

WHEN A/C STOPPED

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

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

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

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

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

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

ASYMMETRIC BRAKING

Normal braking is faulty, or the green hydraulic system is in low pressure, and all brakes of one gear are released.

Apply brake progressively on the available side. Counter swing with the rudder.
Avoid crosswind in excess of 10 knots from the side of the available brake.

- **If only one reverse is available:**

  Do not use Reverse on the side of the available brake.

LDG DIST PROC..... APPLY

ADR CHECK PROC

1 Apply the UNRELIABLE SPEED INDICATION procedure.

UNRELIABLE SPEED INDICATION

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

MEMORY ITEMS

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

- **To level off for troubleshooting:**

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

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

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	F	7.0 / 62.4	7.0 / 58.4	7.0 / 53.0
2	F	8.5 / 62.3	8.5 / 58.3	8.5 / 53.0
1 + F	S	4.5 / 61.3	4.5 / 57.2	4.5 / 52.3
1	S	7.5 / 60.2	7.5 / 55.8	7.5 / 51.0
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	3.5 / 64.7	3.0 / 62.3	2.0 / 60.3
FL 200 - FL 320	275 kt	2.5 / 78.7	2.0 / 76.8	1.0 / 75.3
Above FL 320	M 0.76	3.0 / 84.6	2.5 / 83.3	2.0 / 80.8

FLYING TECHNIQUE TO STABILIZE SPEED

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

UNRELIABLE SPEED INDICATION (Cont'd)

WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT.....ON

TECHNICAL RECOMMENDATIONS

Respect Stall Warning.

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

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

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

  ATC altitude is affected. Notify the ATC.

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

  Refer to Radio Altimeter.

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

AFFECTED ADR IDENTIFICATION

Crosscheck all speed indications and *Refer to QRH PER-A-Operating Speeds table (for F, S speeds)* or *Refer to QRH OPS-Severe Turbulence table (for speed in clean conf)*:

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

  Faulty ADR(s).....OFF

  REMAINING AIR DATA.....CONFIRM

  Alternates sources may be used to evaluate the air data:

  - *GPS altitude.*
  - *GPS and IRS ground speeds, taking into account altitude and wind effect.*

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

  - **When above FL 250:**

    ONE ADR.....KEEP ON

    TWO ADRs..... OFF

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

    For flight continuation, *Refer to QRH ABN-34 UNRELIABLE SPEED INDICATION - Climb / Cruise / Descent (Pitch & Thrust Tables).*

  - **When below FL 250, if speed still unreliable:**

    ALL ADRs P/B..... OFF

    All ADRs must be switched OFF to replace the PFD's normal speed scale and altitude indication to the Back Up Speed Scale and GPS altitude indication.

    SPD..... FLY THE GREEN

    NAV ADR 1+2+3 FAULT

CLIMB / CRUISE / DESCENT (PITCH & THRUST TABLES) - CLIMB

Set the thrust to CL.

UNRELIABLE SPEED INDICATION (Cont'd)

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
FL 250 - FL 320	275 kt	3.5 / CLB	3.5 / CLB	3.5 / CLB
Above FL 320	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

CLIMB / CRUISE / DESCENT (PITCH & THRUST TABLES) - CRUISE

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

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
FL 250 - FL 320	275 kt	2.5 / 78.7	2.0 / 76.8	1.0 / 75.3
Above FL 320	M 0.76	3.0 / 84.6	2.5 / 83.3	2.0 / 80.8

CLIMB / CRUISE / DESCENT (PITCH & THRUST TABLES) - DESCENT

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Above FL 320	M 0.76	-0.5 / IDLE	-1.0 / IDLE	-2.0 / IDLE
FL 320 - FL 250	275 kt	-0.5 / IDLE	-1.0 / IDLE	-2.0 / IDLE

ALL ADR OFF

SPD.....FLY THE GREEN

Fly within the green area of the speed scale to ensure safe flight. For slats/flaps retraction, it is better to fly at the top of the green area of the speed scale.

CAUTION	The altitude displayed on the PFD is a GPS altitude.

BACK UP NAV..... USE

When ADRs are OFF, both FMs are lost.
Revert to Back Up Nav via the NAV B/UP prompt on the MCDU MENU page.

NAVAID TUNING..... USE RMP

Set both RMPs to NAV.

MANUAL CABIN PRESSURE CONTROL

MODE SEL..... MAN

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

MAN CAB PR CTL

TGT V/S : CLIMB 500 ft/min
DESC 300 ft/min

A/C GPS ALT	*CAB ALT TGT*
410	*8000*
350	*7000*
300	*5500*
250	*3000*
<200	*0*

FOR APPROACH

SPD.....FLY THE GREEN

Before extending the slats/flaps, it is better to fly at the bottom of the speed scale green area, and to be in straight flight.

FOR LDG.....USE FLAP 3

GPWS LDG FLAP 3..... ON

LDG DIST PROC.....APPLY

APPR SPD.....FLY THE BUG

During the approach, the bug indicates VAPP.

- **WHEN FLAP 2**

LDG GRVTY EXTN..... PULL AND TURN

CAUTION	All gear doors remain open.

- **WHEN L/G DOWNLOCKED:**

L/G lever.....DOWN

GEAR DOWN indications..... CHECK

- **DURING FINAL APPROACH:**

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

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

2

ALL ADR OFF (Cont'd)

STATUS

INOP SYS

REAC W/S DET
PRED W/S DET
F/CTL PROT
ADR 1+2+3
RUD TRV LIM
YAW DAMPER
AP 1+2
A/THR
CAB PR 1+2
GPWS
GPWS TERR

Other INOP SYS

RAT automatic extension
ATC ALTI MODE
TCAS
L/G RETRACT

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NAV FM / GPS POS DISAGREE

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the ECAM alert is displayed during takeoff initiation:**
  Continue takeoff and monitor navigation.
- **If the ECAM alert is displayed during Climb, Cruise, or Descent:**
  Check accuracy on the MCDU PROG page:
  - **If the ESTIMATED accuracy is below the REQUIRED accuracy:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the ESTIMATED accuracy is above the REQUIRED accuracy:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the positions of both FMs with the GPIRS position, on the MCDU POSITION MONITOR page:
  - **If one FM position agrees with the onside GPIRS position:**
    Use the associated AP/FD.
  - **If not:**
    Deselect GPS and use raw data.
- **If the ECAM alert is displayed during ILS/LOC approach (LOC green):**
  Continue the approach.
- **If the ECAM alert is displayed during a RNP approach:**
  Go around if visual references are not sufficient.
- **If the ECAM alert is displayed during a GLS ◁ approach:**
  Go around if visual references are not sufficient.
- **If the ECAM alert is displayed during a VOR, VOR-DME, NDB, or NDB-DME approach:**
  Select HDG or TRK, and use raw data.

EGPWS ALERTS

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

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

Simultaneously:

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

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

■ **“TERRAIN TERRAIN” - “TOO LOW TERRAIN”:**

Adjust the flight path or initiate a go-around.

■ **"TERRAIN AHEAD" - "OBSTACLE AHEAD":**

Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.

■ **“SINK RATE” - “DON’T SINK”:**

Adjust pitch attitude and thrust to silence the alert.

■ **“TOO LOW GEAR” - “TOO LOW FLAPS”:**

Perform a go-around.

■ **“GLIDE SLOPE”:**

Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

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

MODE SELECTOR..... ATT
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN

- **MCDU INITIALIZATION:**

  DATA (MCDU KEY)..... PRESS
  The DATA INDEX page is displayed.
  IRS MONITOR (2L KEY)..... PRESS
  The IRS MONITOR page is displayed.
  A/C HEADING..... ENTER
  The flight crew must enter the heading in the SET HDG field (5R KEY).

TCAS WARNINGS

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

Do not perform a maneuver based on a TA alone.

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

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

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

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

Respect stall, GPWS, or windshear warning.

Notify ATC.

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

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

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

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

AIR ENG 1+2 BLEED FAULT

Apply this procedure when both engine bleed supply systems are failed. In this configuration, the CAB PR EXCESS CAB ALT may trigger. In this case, apply the ECAM procedure associated to the CAB PR EXCESS CAB ALT before continuing this paper procedure.

■ **If either** AIR ENG 1 BLEED FAULT **or** AIR ENG 1 BLEED ABNORM PR
and
If either AIR ENG 2 BLEED FAULT **or** AIR ENG 2 BLEED ABNORM PR**:**
X BLEED ..... SHUT
ENG 1+2 BLEED ..... OFF THEN ON
Attempt one reset only. If the fault occurs again, consider reset unsuccessful.

● **If unsucessful (no ENG BLEED recovered):**
DESCENT TO FL 100/MEA-MORA ..... INITIATE
ENG 1+2 BLEED ..... OFF
APU BLEED ..... OFF
APU ..... START
WING A.ICE ..... OFF
AVOID ICING CONDITIONS

● **When below FL 200 and APU AVAIL:**
WING A.ICE ..... KEEP OFF
APU BLEED ..... ON

■ **If APU BLEED available:**
MAX FL 200
ENG 1+2 BLEED ..... ON
APU BLEED ..... OFF

● **If no ENG BLEED recovered:**
APU BLEED ..... ON
ENG 1+2 BLEED ..... OFF

● **If PACK 1 inoperative:**
X BLEED ..... OPEN

■ **If APU BLEED not available:**
DESCENT TO FL 100/MEA-MORA ..... CONTINUE
APU BLEED ..... OFF

● **When at or below FL 100/MEA-MORA:**
ENG 1+2 BLEED ..... ON

● **If no ENG BLEED recovered:**
ENG 1+2 BLEED ..... OFF

● **When DIFF PR < 1 PSI:**
RAM AIR ..... ON
MAX FL 100/MEA-MORA

● **If ice accretion during approach:**
APPR SPD ..... VLS + 10 KT
LDG DIST PROC ..... APPLY

AIR ENG 1+2 BLEED FAULT (Cont'd)

■ **In all other cases:**

Applicable when at least one engine bleed supply system is failed due to LEAK, ENG FIRE, Start Air Valve Failed Open:

DESCENT TO FL 100/MEA-MORA ..... INITIATE
X BLEED.....SHUT
ENG 1+2 BLEED.....OFF
APU BLEED..... OFF
APU .....START
WING A.ICE..... OFF
AVOID ICING CONDITIONS

■ **If only** AIR ENG 2 BLEED FAULT **or** AIR ENG 2 BLEED ABNORM PR**:**

● **When at or below FL 100/MEA-MORA:**
ENG 2 BLEED..... ON

● **If no ENG 2 BLEED recovered:**
ENG 2 BLEED..... OFF

● **When DIFF PR < 1 PSI:**
RAM AIR.....ON
MAX FL 100/MEA-MORA

● **If ice accretion during approach:**
APPR SPD.....VLS + 10 KT
LDG DIST PROC..... APPLY

■ **If only** AIR ENG 1 BLEED FAULT **or** AIR ENG 1 BLEED ABNORM PR**:**

● **When at or below FL 200 and APU AVAIL:**
WING A.ICE..... KEEP OFF
APU BLEED.....ON

■ **If APU BLEED available:**
MAX FL 200
ENG 1 BLEED.....ON
APU BLEED.....OFF

● **If no ENG 1 BLEED recovered:**
APU BLEED.....ON
ENG 1 BLEED.....OFF

■ **If APU BLEED not available:**
DESCENT TO FL 100/MEA-MORA ..... CONTINUE
APU BLEED.....OFF

● **When at or below FL 100/MEA-MORA:**
ENG 1 BLEED.....ON

● **If no ENG 1 BLEED recovered:**
ENG 1 BLEED.....OFF

AIR ENG 1+2 BLEED FAULT (Cont'd)

- **When DIFF PR < 1 PSI:**
  RAM AIR..... ON
  MAX FL 100/MEA-MORA
- **If ice accretion during approach:**
  APPR SPD..... VLS + 10 KT
  LDG DIST PROC..... APPLY

■ **If neither** AIR ENG 1(2) BLEED FAULT **nor** AIR ENG 1(2) BLEED ABNORM PR **on any side:**

- **When at or below FL 100/MEA-MORA**
  and
  DIFF PR < 1 PSI:
  RAM AIR..... ON
  MAX FL 100/MEA-MORA
- **If ice accretion during approach:**
  APPR SPD..... VLS + 10 KT
  LDG DIST PROC..... APPLY

Intentionally left blank

ENG DUAL FAILURE - FUEL REMAINING

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

LAND ASAP

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

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

OPTIMUM RELIGHT SPD.....300 KT

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

WEIGHT	***Pitch (°)***
At or below 50 000 kg/110 000 lb	*-4.5*
60 000 kg/132 000 lb	*-3.5*
70 000 kg/154 000 lb	*-2.5*

At 300 kt, the aircraft can fly up to about 2 nm/1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE

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

VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**

  ENG MASTERS..... OFF 30 S/ON

  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**

  CREW OXY MASKS (Above FL 100).....ON

  - **WHEN BELOW FL 250**

    APU (IF AVAIL)..... START

  - **WHEN BELOW FL 200**

    WING ANTI ICE..... OFF
    APU BLEED..... ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

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

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
78	*241*	*251*	*261*
76	*237*	*247*	*257*
72	*229*	*239*	*249*
68	*221*	*231*	*241*
64	*213*	*223*	*233*
60	*205*	*215*	*225*
56	*197*	*207*	*217*
52	*189*	*199*	*209*
48	*181*	*191*	*201*
44	*173*	*183*	*193*
40	*165*	*175*	*185*

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

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

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR.....ON

APPROACH PREPARATION

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

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

IF FORCED LANDING ANTICIPATED

APPROACH

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

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*155*	*159*	*163*	*167*	*171*	*173*

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

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

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

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

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

AFTER LANDING

- **When the aircraft has stopped:**
  PARKING BRK..... ON
  ATC..... NOTIFY
  FIRE pushbutton (ENG and APU)..... PUSH
  AGENTS (ENG and APU)..... DISCH
  Engine Agent 2 is not available.
  - **If Evacuation required:**
    EVACUATION..... INITIATE
    ELT ◁ ..... CHECK EMITTING
    If not, switch on the transmitter.
  - **If Evacuation not required:**
    CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED..... 150 KT

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

VAPP..... DETERMINE

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

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*155*	*159*	*163*	*167*	*171*	*173*

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

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

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

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

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

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

Engine Agent 2 is not available.

EVACUATION.....INITIATE

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

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

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

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

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

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

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
68	*221*	*231*	*241*
64	*213*	*223*	*233*
60	*205*	*215*	*225*
56	*197*	*207*	*217*
52	*189*	*199*	*209*
48	*181*	*191*	*201*
44	*173*	*183*	*193*
40	*165*	*175*	*185*

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

LANDING STRATEGY.....DETERMINE

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

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

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

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

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

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

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

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

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*155*	*159*	*163*	*167*	*171*	*173*

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

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

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

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

AFTER LANDING

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

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

IF DITCHING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 150 KT

VAPP..... DETERMINE

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

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*155*	*159*	*163*	*167*	*171*	*173*

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

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell

If that causes a strong crosswind, ditch into the wind..

In all cases, touch down with a pitch attitude of approximately11 °.

Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

EVACUATION.....INITIATE

ELT ◁✻ ..... CHECK EMITTING

If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

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

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

ENG PARAMETERS (N2, EGT)..... CHECK

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

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

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

Affected SYS..... RESTORE

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

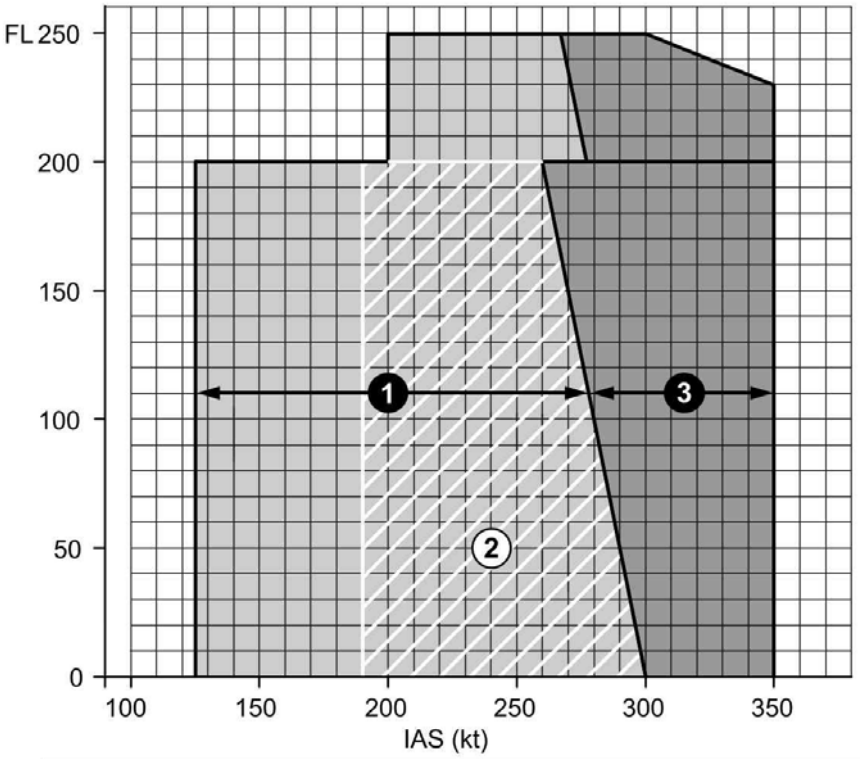
■ **If no relight :**

ENG MASTER (affected)..... OFF

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

ENG RELIGHT (Cont'd)
(IN FLIGHT)

IN FLIGHT ENGINE RELIGHT ENVELOPE



1 STARTER ASSISTED RELIGHT
Above FL200 N2≤15% (Engine Bleed)
Below FL200 N2≤12% (APU or Engine Bleed)

2 WINDMILL QUICK RELIGHT if N2 > 12%

3 STABILIZED WINDMILL RELIGHT

ENG 1(2) STALL

■ **N2 between 50 % and IDLE:**

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

ENG 1(2) SHUT DOWN

■ **N2 above IDLE (title and procedure not displayed on ECAM):**

■ **On ground :**

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

■ **In flight :**

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

● **If abnormal :**

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

ENG 1(2) SHUT DOWN

● **If normal :**

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

● **If a stall recurs :**

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

● **If a stall does not recur :**

Continue engine operation.

ENG TAILPIPE FIRE

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

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

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

HIGH ENGINE VIBRATION

The VIB advisory on ECAM (N1 ≥ 6 units, N2 ≥ 4.3 units) is mainly a guideline for the flight crew to monitor engine parameters more closely.
The ECAM vibration advisory alone does not require engine shut down.

Note: *1. High engine vibration may be accompanied by cockpit and cabin smoke and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*
2. High N1 vibration are generally accompanied by perceivable airframe vibrations. High N2 vibration can occur without perceivable airframe vibrations.

ENG PARAMETERS.....CHECK
Check engine parameters and especially EGT; crosscheck with other engine. Report in maintenance log.

■ If icing is suspected:

An increase of engine vibration in icing conditions with or without engine anti-ice may be due to fan blades and/or spinner icing. Icing may be suspected if N1 vibration occurs without other engine parameters variation.

A/THR..... OFF
ENGINE ANTI ICE.....CHECK
*If ENG ANTI ICE is off, switch it ON **at idle fan speed,** one engine after the other with approximately 30 s interval.*
THRUST (one engine at a time)..... IDLE THEN INCREASE
Reduce thrust to idle if flight conditions permit.
To shed ice, it may be necessary to perform several thrust variations between idle and a thrust compatible with the flight phase. For efficient ice shedding, thrust should be increased to at least 80% N1 if flight conditions permit.
After each thrust variation, vibrations should decrease, indicating the progress of the ice shedding. When the ice is shed, vibrations should return to normal and the flight crew can resume normal engine operation.

■ If icing is not suspected:

● If above vibration advisory:

THRUST (affected engine).....REDUCE
If flight conditions permit, reduce thrust to maintain vibration level below the advisory threshold. If the VIB indication does not decrease following thrust reduction, this may indicate other problems on the engine.

Note: *If possible, shut down the engine after landing for taxiing, if vibrations above the advisory threshold are, or have been experienced.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

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

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

  FOR LDG ..... USE FLAP 3

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

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

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

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	77.0	76.0	69.0	63.0	58.0	53.0	48.0	45.0
5	77.0	76.0	69.0	63.0	58.0	53.0	48.0	45.0
10	77.0	76.0	69.0	63.0	58.0	53.0	48.0	45.0
15	77.0	76.0	69.0	63.0	58.0	53.0	48.0	45.0
20	77.0	76.0	69.0	63.0	58.0	53.0	48.0	45.0
25	77.0	75.0	69.0	63.0	58.0	53.0	48.0	45.0
30	77.0	72.0	68.0	63.0	58.0	53.0	48.0	
35	74.0	70.0	66.0	63.0	56.0	51.0		
40	71.0	67.0	63.0	59.0				
45	69.0	65.0	61.0					
50	67.0	63.0						
55	64.0							

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

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

BOMB ON BOARD / CONCEALED WEAPONS

1 IF POSSIBLE, LAND AND EVACUATE / DISEMBARK THE AIRCRAFT IMMEDIATELY.

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

2 ## COCKPIT PROCEDURES

BACKGROUND

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

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

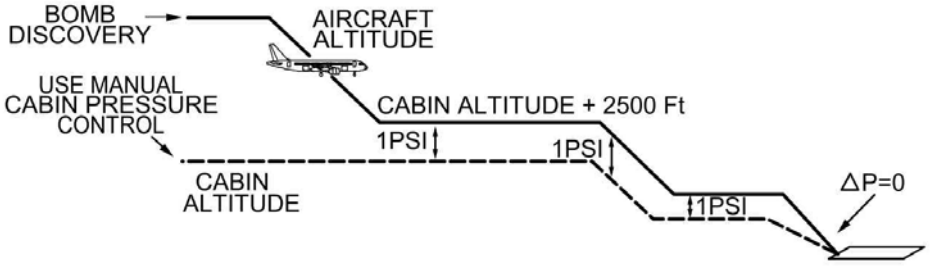
These conditions are achieved by using the manual pressure control.

PROCEDURE

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

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

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



AIRCRAFT (if climbing).....LEVEL OFF

CABIN PRESS MODE SEL.....MAN

CAB ALT.....MAINTAIN

CABIN CREW.....NOTIFY

EOD PERSONNEL ON BOARD.....CHECK

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

ATC/COMPANY OPERATIONS.....NOTIFY

FUEL RESERVES.....DETERMINE

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

NEXT SUITABLE AIRPORT.....DETERMINE

FCU SPEED SELECTION KNOB.....PULL AND TURN

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

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

BOMB ON BOARD / CONCEALED WEAPONS (Cont'd)

AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

- **When at CAB ALT+ 2 500 ft:**
  1 PSI ΔP.....MAINTAIN
  GALLEY.....OFF
  EMER EXIT LT..... ON
  COMMERCIAL..... OFF
  FLAPS (fuel permitting)..... AT LEAST CONF 1
  For landing, use normal configuration.
  LANDING GEAR (fuel permitting, except for flight over water).....DOWN
- **For any other steps of descent:**
  1 PSI ΔP.....MAINTAIN
- **During approach:**
  CABIN PRESS MODE SEL..... AUTO
- **When aircraft on ground and stopped in a remote area (if possible) :**
  - **If Evacuation required:**
    EVACUATION.....INITIATE
    Avoid exits, and exiting on the same side as the bomb or near the bomb.
  - **If Evacuation not required:**
    CABIN CREW and PASSENGERS (PA).....NOTIFY

3 **CABIN PROCEDURES**

BOMB / CONCEALED WEAPONS..... SEARCH

If a suspect device is found in the cabin:

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

CABIN CREW.....NOTIFY FLIGHT CREW
DO NOT OPEN THE BOMB
DO NOT CUT BOMB'S WIRES

- **Only if EOD is present:**
  SECURE BOMB AGAINST SLIPPING
  PROTECT BOMB AGAINST SHOCKS
  Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.

PASSENGERS.....LEAD AWAY FROM BOMB
Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.
Passengers near the bomb should protect their heads with pillows, blankets or clothes. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.
Seat backs and tray tables must be in their full upright position.
Service items may need to be collected in order to secure tray tables.

BOMB ON BOARD / CONCEALED WEAPONS (Cont'd)

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

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

GALLEY/IFE POWER.....OFF

All galley and IFE equipment located close to the bomb must be switched off.

EVACUATION/DISEMBARKATION.....EXECUTE

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

Use all available airport facilities to disembark without delay.

DITCHING

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

4 **PREPARATION**

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

- **When conditions permit:**
  ELT..... ON

APPROACH

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

AT 2 000 FT AGL

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

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

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

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENGs and APU)..... DISCH
EVACUATION..... INITIATE
ELT.....CHECK EMITTING
If not,switch ON the transmitter.

FORCED LANDING

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

5

PREPARATION

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

Notify ATC of the nature of the emergency encountered, and state intentions.
If not in contact with ATC, select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

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

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

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

- **When conditions permit:**

  ELT..... ON

APPROACH

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

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

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

AFTER LANDING

- **When aircraft has stopped:**

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

FORCED LANDING (Cont'd)

- **If Evacuation required:**
  EVACUATION.....INITIATE
  ELT..... CHECK EMITTING
  If not, switch on the transmitter.
- **If Evacuation not required:**
  CABIN CREW and PASSENGERS (PA).....NOTIFY

EMER DESCENT

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

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

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged:
- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE
- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

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

6 **WHEN DESCENT ESTABLISHED**

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

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

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

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

ENG MODE SEL.....IGN

ATC.....NOTIFY

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

ATC XPDR 7700.....CONSIDER

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

MAX FL..... 100/MEA

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

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

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

OVERSPEED RECOVERY

As soon as the speed exceeds VMO/MMO, apply the following actions:

AP : KEEP ON
SPEED BRAKE LEVER..... AS RQRD

Note: *The use of speed brakes results in a reduction of the speed envelope.*

THRUST REDUCTION..... MONITOR

- **If the A/THR is OFF:**
  ALL THR LEVERS.....IDLE
- **If the AP automatically disengages:**
  HIGH SPEED PROTECTION : ACTIVE IN NORM LAW
  The activation of the high speed protection results in an automatic pitch up in order to reduce the speed.
  - **While the speed is above VMO/MMO:**
    SPEED BRAKE LEVER : AS RQRD
    PITCH ATT..... ADJUST SMOOTHLY AS RQRD
- **When the speed is below VMO/MMO with a sufficient margin to VMO/MMO:**
  SPEED BRAKE LEVER.....AS RQRD
  - **If the A/THR is OFF:**
    ALL THR LEVERS..... MAN ADJUST
  - **If the AP is OFF:**
    FLIGHT PATH..... RECOVER SMOOTHLY
  - **In the case of severe turbulence:**

    Refer to QRH OPS - Severe Turbulence

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

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

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

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

LDG DIST.....CHECK

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

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

- **In the final approach stages:**
  TARGET SPEED..... VLS
  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown:**
  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown:**
  BRAKES.....APPLY AS NECESSARY
  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete:**
  BRAKE FANS ◁⊯ .....ON
  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	85	83	84	81	77	71	66	61
15	85	83	83	81	77	70	64	57
20	85	83	83	81	75	67	61	55
25	85	83	83	79	72	64	58	
30	84	83	81	77	69			
35	84	83	79	73	66			
40	84	81	75	69				
45	82	76	70					
50	78	72						
55								

STALL RECOVERY

7

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

NOSE DOWN PITCH CONTROL..... APPLY
This will reduce angle of attack

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

BANK.....WINGS LEVEL

- **When out of stall (no longer stall indications) :**
  THRUST.....INCREASE SMOOTHLY AS NEEDED

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

  SPEEDBRAKES.....CHECK RETRACTED
  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**
    FLAP 1.....SELECT

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

STALL WARNING AT LIFTOFF

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

THRUST.....TOGA

At the same time:

PITCH ATTITUDE..... 15 °
BANK.....WINGS LEVEL

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

TAILSTRIKE

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

LAND ASAP

MAX FL..... 100 or MSA

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

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

VOLCANIC ASH ENCOUNTER

8

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

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

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

ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

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

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

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

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

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

WINDSHEAR

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

■ At takeoff:

■ If before V1:

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

■ If after V1:

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW
If necessary, the flight crew may pull the sidestick fully back.

Note: *If the FD bars are not displayed, move toward an initial pitch attitude of 17.5 °. Then, if necessary, to prevent a loss in altitude, increase the pitch attitude.*

■ Airborne, initial climb or landing:

THR LEVERS AT TOGA.....SET OR CONFIRM
AP (if engaged).....KEEP ON
SRS ORDERS.....FOLLOW
If necessary, the flight crew may pull the sidestick fully back.

Note: *1. Autopilot disengages if the angle of attack value goes above α prot.*
2. If the FD bars are not displayed, move toward an initial pitch attitude of 17.5 °. Then, if necessary, to prevent a loss in altitude, increase the pitch attitude.

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

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF WINDSHEAR.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*
- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*
  Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff:

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff:**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run:**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne:**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  AP (if engaged).....KEEP ON

  SRS ORDERS.....FOLLOW

  If necessary, the flight crew may pull the sidestick fully back.

  Note: *1. Autopilot disengages if the angle of attack value goes above α prot.*
  2. If the FD are not displayed, move toward an initial pitch attitude of 17.5 °. Then, if necessary, to prevent a loss in altitude, increase the pitch attitude.

■ Landing:

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

AP (if engaged).....KEEP ON

If necessary, the flight crew may pull the sidestick fully back.

Note: *1. Autopilot disengages if the angle of attack value goes above α prot.*
2. If the FD are not displayed, move toward an initial pitch attitude of 17.5 °. Then, if necessary, to prevent a loss in altitude, increase the pitch attitude.

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W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before takeoff:

Delay takeoff until conditions improve.

Evaluate takeoff conditions:

WINDSHEAR AHEAD (Cont'd)

- Using observations and experience,
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During approach:**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by:

- Using observations and experience,
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to QRH PER-C VAPP Determination without Failure., or use the LDG PERF application of FlySmart with Airbus for VAPP determination.*

WINDSHIELD / WINDOW ARCING

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

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

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*
  On the rear C/B panel :
  - *ANTI ICE L WSHLD C/B AF10 (123VU)*
  - *ANTI ICE R WSHLD C/B AF03 (123VU)*
  - *ANTI ICE/WINDOWS L C/B X14 (122VU)*
  - *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD / WINDOW CRACKED

DIAGNOSIS OF INNER PLY.....PERFORM

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

■ **If no crack on cockpit side:**

No limitation

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

■ **If cracks on cockpit side:**

MAX FL..... 230/MEA

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

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

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

CAB PRESS MODE SEL..... MAN

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

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

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

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

CAB PRESS MODE SEL..... AUTO

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

CAB PRESS MODE SEL..... MAN

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

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

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to QRH ABN-28 FUEL LEAK.*
	Fuel temp greater than 45 °C in inner cell, or 55 °C in outer cell	GALLEY (OFF)
	Fuel temp lower than -40 °C in inner or outer cell	Consider descending to a lower altitude and/or increasing Mach to increase TAT.
OXY	CKPT OXY Pulsing green: When pressure is < 600 PSI. Amber: When pressure is < 300 PSI.	If mask is not being used, check if it is correctly stowed.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 16 PSI	- If oil pressure is between 16 PSI and 13 PSI (advisory), continue normal operation. - If oil pressure is below 13 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and quantity.
	OIL PRESS P > 90 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 140 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed - Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed - Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG .*
	OIL QTY < 3 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.

Continued from the previous page

SYSTEM	CONDITIONS	RECOMMENDED ACTION
	NAC TEMP ≥ 240 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 6 units N2 ≥ 4.3 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to QRH ABN-70 High Engine Vibration*).

TRIPPED C/B RE-ENGAGEMENT

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

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

COMPUTER RESET

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

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

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

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

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

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

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

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

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

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System`	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 5 s before pushing the C/B.
	AIR PACK 1(2) REGUL FAULT	ACSC	**On ground only:** - Pull C/B W21 and W22 on 122VU - Pull C/B X21 and X22 on 122VU - Pull C/B Y18, Y20 and Y21 on 122VU - Pull C/B D8 on 49VU - Wait 5 s before pushing all the C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System`	Reset
13 22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If AUTO FLT FCU 1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If AUTO FLT FCU 1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If AUTO FLT FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If AUTO FLT FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System`	Reset
	WINDSHEAR DET FAULT or AUTO FLT REAC W/S DET FAULT ◁✻	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
22	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁✻

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ATA	System malfunction or ECAM Warning/Caution	Affected System`	Reset
	Both MCDU locked, or blank	FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 10 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. *Note:* *Due to electrical transient, MANUAL FMGS RESET procedure may be unsuccessful. If so, the flight crew may attempt the same procedure with engines not running.* **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 10 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.
	FMGC malfunction	FMGC	

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System`	Reset
23	COM CIDS 1+2 FAULT and/or Loss of Passenger Address and/or Loss of Cabin Interphone	CIDS	**Confirm if spurious:** - Check PA function - Check Cabin Interphone function - Check Cabin Lighting function If spurious, reset the CIDS when aircraft is self powered (APU or engine). **On ground or in flight:** - Pull the C/Bs in the following order: P13 ◁ and P14 ◁ on 121VU, G01 and G02 on 49VU, M05 and, M06 on 121VU. - Wait 10 s, then - Push the C/B in the following order: M05, M06, G01, G02, P13 ◁ , P14 ◁ . - After CIDS reset, wait approximately 4 min before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR2 in the following order: G02 on 49VU, M06 on 121VU. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR1 in the following order: G01 on 49VU, M05 on 121VU. - Wait for 1 min, then: - Push the C/Bs for DIR2 in the following order: M06, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP	**On ground, or in flight:** - Pull the C/Bs in the following order: H01 on 49VU, Q14 on 121VU. - Wait 10 s, then: - Push the C/Bs in the following order: Q14, H01.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System`	Reset
24	GPU cannot be connected to the aircraft	GAPCU	**On ground only:** The GPU cannot be connected to the electrical network of the aircraft (AVAIL light is OFF): • If at least one power source (IDG 1 or 2, APU GEN or batteries) is connected to the electrical network of the aircraft. - Reset the EXT PWR pb on 35VU (Press and release) • If no power source is connected to the electrical network of the aircraft. - Set the BAT 1 pb-sw and BAT 2 pb-sw to AUTO.
26	SMOKE DET FAULT	CIDS-SDF	**On ground or in flight:** Apply the following actions in the presented order: - Pull the C/Bs C05 and C06 on 49VU, T17 and T18 on 122VU. - Wait 10 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU. - After CIDS reset, wait approximately 4 min before recovering normal operation.
	SMOKE LAVATORY DET FAULT with all lavatories declared inoperative on the FAP	CIDS or CIDS-SDF	**On ground or in flight:** Apply the following actions in the presented order: - Pull the C/Bs P13 and P14 ◁ on 121VU, G01 and G02 on 49VU, M05 or M06 or M07 on 121VU. - Wait 10 s, then - Push the C/Bs in the following order: M05 or M06 and M06 or M07 on 121VU, G01 and G02 on 49VU, P13 and P14 ◁ ; on 121VU. - After CIDS reset, wait approximately 4 min before recovering normal operation. **If unsuccessful, on ground only:** Apply the following actions in the presented order: - Pull the C/Bs C06 and C05 on 49VU, T17 and T18 on 122VU. - Wait 10 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU. - After CIDS reset, wait approximately 4 min before recovering normal operation.
	SMOKE FWD (AFT) CARGO DET FAULT SMOKE FWD (AFT) CRG 1/2 BTL FAULT	CIDS-SDF	**On ground:** Apply the following actions in the presented order: - Pull the C/Bs C05 and C06 on 49VU, T17 and T18 on 122VU. - Wait 10 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU. - After CIDS reset, wait approximately 4 min before recovering normal operation.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System`	Reset
14	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING** Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING** Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
15 28	Loss of fuel quantity indication or Simultaneous triggering of FUEL L OUTER XFR CLOSED and FUEL R OUTER XFR CLOSED although FUEL SD indicates no anomaly.	FQIC	**On ground, or in flight:** - Pull the 3 C/B: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) • Channel 1 and 2 (L26 on 121VU) - Wait 5 s, before pushing the 3 C/B. *Note:* *The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

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

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ATA	System malfunction or ECAM Warning/Caution	Affected System`	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft,
			- Set PARK BRK handle to ON,
			- Confirm that towing bar is disconnected,
			- Set A/SKID & N/W STRG sw to OFF,
			- Set A/SKID & N/W STRG sw to ON,
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1,
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2,
			  - Push C/Bs.
			After a successful reset, resume to normal operation.
			Note: *After any BSCU reset:*
			1. Check brake efficiency,
			2. Record BSCU reset in the logbook.
			In Flight:
			When landing gear is up only:
			- Set A/SKID & N/W STRG sw to OFF,
			- Set A/SKID & N/W STRG sw to ON,
			- If required, rearm the autobrake.
			When landing gear is down: reset not authorized.
			Note: *After any BSCU reset:*
			- Record BSCU reset in the logbook.

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** **Case A** If the three conditions below are fulfilled: - the WHEEL N/W. STRG FAULT alert was triggered just after engine start - the NW STRG DISC memo was displayed before the start of the pushback (before the aircraft starts moving) - the NW STRG DISC memo remained displayed even after the pushback is finished (nosewheel steering selector bypass pin is in the steering position). Apply the below reset procedure. If the ECAM alert disappears after the reset, the flight crew may continue the flight without troubleshooting. **Case B** In all other cases, including in case of doubt on the above conditions, troubleshooting must be performed before continuing the flight, even if the ECAM alert disappears after the reset. For a return to the gate : - Apply the below reset procedure - The taxi speed must not exceed 10 kt. **Reset Procedure:** - STOP aircraft, - Set PARK BRK handle to ON, - Confirm that towing bar is disconnected, - Set A/SKID & N/W STRG sw to OFF, - Set A/SKID & N/W STRG sw to ON. *Note:* *After any BSCU reset:* *1. Check brake efficiency,*

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ATA	System malfunction or ECAM Warning/Caution	Affected System`	Reset
			2. Check absence of aircraft veering, *3. Record the BSCU reset in the logbook.*
	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:** The flight crew must depressurize the green hydraulic system before resetting the LGCIU. - ENG 1 PUMP: OFF, - PTU: OFF. When there is no green hydraulic pressure: - To reset LGCIU 1: • Pull C/B Q34 on 121VU, then C09 on 49VU, • Wait for 15 s , then push the C/Bs; - To reset LGCIU 2: • Pull C/B Q35 on 121VU, • Wait for 15 s , then push the C/B. After the LGCIU reset, restore green hydraulic pressure (ENG 1 PUMP ON, PTU AUTO).
34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.
	ISIS malfunction	ISIS	**On ground only:** With aircraft not moving: - Pull C/B F12 on 49VU, - Wait 5 s, then push the C/B, - Normal operation is expected after approximately 2 min. *Note:* *In the case of small aircraft motion during the C/B reset (refueling, cargo loading conditions, etc.), the ATT red flag may appear on the ISIS. In this case, press the RST P/B for 2 s, and wait 2 min to recover normal operation.*

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ATA	System malfunction or ECAM Warning/Caution	Affected System`	Reset
16 36	AIR ENG 1(2) BLEED FAULT or AIR ENG 1(2) BLEED ABNORM PR	Engine Bleed Supply System	*Note:* *Do not attempt more than one reset.* **On ground or in flight** • **If the PACK (non-affected side) is operative, and** **If the Wing Anti-Ice is OFF:** - ENG BLEED (affected side).....OFF ■ **If the ENG BLEED (affected side) pb-sw FAULT light is on:** - Delay application of the reset until FAULT light extinguishes. ■ **If the ENG BLEED (affected side) pb-sw FAULT light is off:** - X BLEED.....AUTO - PACK (affected side).....ON - ENG BLEED (affected side).....ON - Check that the affected Engine Bleed Valve is open on the BLEED SD page. • **If** AIR ENG (AFFECTED) BLEED FAULT **alert or** AIR ENG (AFFECTED) BLEED ABNORM PR **alert reoccurs, or** **If Engine Bleed Valve (affected side) not open on the** BLEED SD page **:** - ENG BLEED (affected side).....OFF - X BLEED.....OPEN *Note:* *Record the ENG BLEED reset in the logbook (successful or unsuccessful).*
	AIR ENG 1(2) BLEED NOT CLSD	Engine Bleed Supply System	*Note:* *Do not attempt more than one reset.* **On ground only** - ENG BLEED (affected side).....OFF ■ **If the ENG BLEED (affected side) pb-sw FAULT light is on:** - Delay application of the reset until FAULT light extinguishes. ■ **If the ENG BLEED (affected side) pb-sw FAULT light is off:** - ENG BLEED (affected side).....ON - Check that the affected Engine Bleed Valve is closed on the BLEED SD page. *Note:* *Record the ENG BLEED reset in the logbook (successful or unsuccessful).*

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ATA	System malfunction or ECAM Warning/Caution	Affected System`	Reset
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.
70	ENG 1(2) FADEC A(B) FAULT	FADEC	**On ground only:** If this alert triggers at engine start, apply the following procedure: - Set ENG MASTER (affected) pb-sw to OFF After N2 speed below 5 %: - Pull C/B A04 or A05 on 49VU for ENG 1(2) FADEC channel A - Pull C/B R41 or Q40 on 121VU for ENG 1(2) FADEC channel B - Wait 5 s before pushing the C/Bs After ECU power-up sequence the Flight Crew can restart the engine.

EMERGENCY EVACUATION

17

AIRCRAFT/PARKING BRK..... STOP/ON
ATC (VHF 1).....NOTIFY
CABIN CREW (PA)..... ALERT
ΔP (only if MAN CAB PR has been used)..... CHECK ZERO
If not zero, MODE selector on MAN, V/S CTL FULL UP.
ENG MASTERS (ALL).....OFF
FIRE Pushbuttons (ALL : ENG and APU)..... PUSH
AGENTS (ENG and APU).....AS RQRD

- **If evacuation required:**
  EVACUATION..... INITIATE
- **If evacuation not required:**
  CABIN CREW and PASSENGERS (PA)..... NOTIFY

TAKEOFF BRIEFING

MISC	A/C type and model & technical status OEB's NOTAM Weather @ RWY conditions LVP (Low Visibility Procedures), if applicable Use of ENG / Wing Anti Ice ENG Start Procedure Pushback & Expected Taxi Clearance Use of Radar & Use of Packs for Takeoff
INIT A&B	Init A Block Fuel / Estimated TOW / Extra time at destination
PERF	TO RWY TO CONF FLEX / TOGA & V1, VR, V2 TRANS ALT & THR RED ACC Altitude
FPLAN	Charts (Charts Number, Issue Date and MSA) Minimum Safe Altitude & First Assigned FL Flight Plan description RAD NAV
ABN	Abnormal Operations Before V1 - CM1 BRIEFING After V1 - PF BRIEFING (EOSID / CFIT)

APPROACH BRIEFING

MISC	A/C type and model & technical status NOTAM
WX	CFIT (TERR ON ND use) Acessibility
FUEL	Extra Fuel
DESC	Charts (Chart Number, Issue Date) MORA, STAR, MSA Altitude and speed constrains
HOLD	Entry in holding pattern & MHA MAX speed
APPR	Approach type Altitude and FAF identification Glide path MDA / DH Missed approach procedure Alternate considerations
LDG	RWY data / LDG PERF consideration vs. RWY data Tail strike awareness Use of autobrake & use of reversers Expected taxi route/ One Engine Taxi/ APU Start delay
RADIOS	RAD NAV

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ONE EFB FAILURE DURING FLIGHT

1

The following procedure should be applied in case of single failure of any part of EFB during flight.

IPAD FAILURES

If any time during flight ONE iPad/Jeppesen app/Performance app/Documents app fail, the operative one must be used by Pilot as required.

MOUNTING FAILURE

If any time during flight ONE Mounting device fails, associated iPad must be used with the kneeboard loacated inside the Briefcase.

TWO EFB FAILURES DURING FLIGHT

2

The following procedure should be applied in case of dual failure of any part of EFB during flight.

IPAD FAILURES

- If any time during flight Two iPads fail, flight Crew must contact ATC to request approach procedures. QRH must be used for performance calculation.
- If any time during flight Two Jeppesen apps fail, flight Crew must contact ATC to request approach procedures.
- If any time during flight Two Performance apps fail, flight Crew must use the QRH for Performance calculation.
- If any time during flight Two Document apps fail, only the QRH will be available.

MOUNTING FAILURE

- If any time during flight TWO Mounting devices fail, one iPad must be used with the kneeboard loacated inside the Briefcase and remaining iPad can be used loose except for Take off and Landing (when loose iPad must be stowed) .
- If any time during flight TWO Mounting devices fail and also the kneeboard is inoperative or missing, both iPads may be used loose except for Take off and Landing (when both iPads must be stowed) also Flight Crew must contact ATC to request approach procedures.

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Localization Title	Page	ID	Reason
NP-PLP-TOC Normal Procedures	1/2	1	Documentation update: Deletion of the "18700938.9001002 Taxi" documentary unit.
			Documentation update: Deletion of the "18700943.9001002 Cruise" documentary unit.
			Documentation update: Deletion of the "18700945.9001002 Descent" documentary unit.
NP-NP Safety Exterior Inspection	1/14	1	**Change of CP and FO to CM1 and CM2. SOP LATAM standardization.**
			Change in "WHEEL CHOCKS .....CHECK IN PLACE" to "WHEEL CHOCKS.....CHECK POSITION". SOP LATAM standardization.
NP-NP Preliminary Cockpit Prep	1/14	2	**Add information to CM1 functions "C/B PANELS.....CHECK".SOP LATAM standardization.**
			Information moved upward in CM1 functions.SOP LATAM standardization.
			Add information to CM1 functions "GEARS PINS and COVERS.....CHECK ONBOARD/STOWED".SOP LATAM standardization.
			Add information to CM1 functions "DOCUMENTATION AND MAINTENANCE.....VERIFY". In CM2 functions "EMER EQPT.....CHECK" moved at the beginning. SOP LATAM standardization.
			Add information to CM1 and CM2 functions "EFB.....SET".SOP LATAM standadization.
			Exterior walkaround is positioned in the center to match the note (1).
			Change of CP and FO to CM1 and CM2. SOP LATAM standardization.
NP-NP Cockpit Preparation	1/14	3	**Addition information to CM1 "ALL IR MODE selector.....NAV". SOP LATAM**
			Addition to CM1 functions "PACK 2.....ON". SOP LATAM standardization.
			Addition to CM1 functions "FUEL panel.....AS RQRD". SOP LATAM standardization.
			Chage in text "RMP" and moved on structure of CM1 functions. SOP LATAM standardization.
			Add information to CM1 functions "ACARS.....INITIALIZE". SOP LATAM standardization.
			Change in text "BARO" to "BAROMETRIC". SOP LATAM standardization.
			Information to CM2 "AIRFIELD DATA.....OBTAIN" moved at beginning. SOP LATAM standardization.
			Change in text "CAPT PURS/CAPT sw .....CAPT". SOP LATAM standardization.
			Addition of ATC Clearence instruction. SOP LATAM standardization.
			Addition of TCAS instruction. SOP LATAM standardization.
			Changed from PF to CM1. SOPLATAM standardization.
			Change of CP and FO to CM1 and CM2. SOP LATAM standardization.
NP-NP Before Pushback or Start	3/14	4	**Transferred to CM1 functions.SOP LATAM standardization**
			Add information "ELAPSED TIME ".SOP LATAM standardization
			Add information related to "LOADSHEET" (PF TASK). SOP LATAM standardization.
			Relocated and add information related to FMS PERF TO (PF TASK).SOP LATAM standardization
			Relocated an add information related to FMS F-PLN (PM TASK).SOP LATAM standardization
			Functions related to EXTERNAL PWR transferred to CM1. SOP LATAM standardization.
			Change of CP and FO to CM1 and CM2. SOP LATAM standardization.
			Addition of ATC instruction. SOP LATAM standardization.
			Add information "TO DATA.....CHECK REVISE AS RQRD (PF TASK)" AND "TO DATA.....XCHECK(PF TASK).SOP LATAM standardization
NP-NP One Engine Taxi (If Required (1))	3/14	5	Documentation update: Addition of "One Engine Taxi (If Required (1))" documentary unit
NP-NP Engine Start (If Required (1))	4/14	6	**Renamed title and added note in order to decide if One Engine Taxi ore Engine Start procedure will ber done. SOP LATAM standardization**
NP-NP	4/14	7	**Change of CP and FO to CM1 and CM2. SOP LATAM standardization.**

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Localization Title	Page	ID	Reason
Engine Start (If Required (1))			**Renamed title and added note in order to decide if One Engine Taxi ore Engine Start procedure will ber done. SOP LATAM standardization**
NP-NP After Start	4/14	8	**Add information "XBLEED.....AS RQRD". SOP LATAM standardization.**
			Add information to CM1 "PACK 1.....AS RQRD". SOP LATAM standardization.
			Add information to CM1 " Y ELEC PUMP.....AS RQRD". SOP LATAM standardization.
			Standardization of actions order, to be in accordance with the procedure described in the FCOM.
			Standardization of actions order, to be in accordance with the procedure described in the FCOM
			Change of CP and FO to CM1 and CM2. SOP LATAM standardization.
NP-NP Taxi	4/14	9	Documentation update: Addition of "Taxi" documentary unit
NP-NP Before Takeoff	5/14	10	**Change of CP and FO to PF and PM. SOP LATAM standardization.**
			Add to PF information related to exterior lights(RWY, LAND LIGHTS, WING LIGHTS, NOSE).SOP LATAM standardization
			Add to PM functions information related to PACK1 and PACK2. TCAS mode selector (TA/RA). "BEFORE TAKE OFF C/L below the line.....COMLETE". SOP LATAM standardization
NP-NP Takeoff	6/14	11	**Change of CP and FO to PF and PM. SOP LATAM standardization.**
			Add PF information related to "AT V1 5KT". SOP LATAM standardization
NP-NP After Takeoff	6/14	12	**Add to PM functions "AFTER TAKEOFF/CLIMB C/L down to the line....COMPLETE". SOP LATAM standardization.**
NP-NP Climb	6/14	13	**"EFIS OPTION" Change of "CSTR" to "AS RQRD". SOP LATAM standardization.**
			Add information to PM functions "AFTER TAKEOFF/CLIMB C/L bellow the line.....COMPLETE". SOP LATAM standardization.
			Addition of text "AFE" to "10 000 ft". SOP LATAM standardization.
			Instruction "LAND LIGHTS selector.....RETRACT" was replaced by "WINGS LIGHTS selectors.....OFF". SOP LATAM standardization.
NP-NP Cruise	7/14	14	Documentation update: Addition of "Cruise" documentary unit
NP-NP Descent Preparation	7/14	15	**Change of writting in PF "FMS .....PREPARE" and PM "FMS PREPARATION.....CHECK". SOP LATAM standardization.**
			Add "TERR ON ND.....ASVRQRD". SOP LATAM standardization.
			Add to PF "RADAR.....ADJUST APPROPRIATE". SOP LATAM standardization.
			Addition of TCAS instruction. SOP LATAM standardization.
			Add to PF functions "LANDING PERFORMANCE.....CONFIRM". SOP LATAM standardization
NP-NP Descent	8/14	16	Documentation update: Addition of "Descent" documentary unit
NP-NP Aircraft Configuration for Approach	8/14	17	**Add information to PM functions "LDG C/L.....COMPLETE". SOP LATAM standardization.**
			Change of title of "Just before VIP or GS Interseption" to "AT 2000 FT AGL". SOP LATAM standardization.
			Revision of the procedure in order to clarify the minimum altitude at which the crew must select FLAPS position 2.
			Change of typo, unit of "nm" to "NM".
			"VAPP" replaced by "Speed Target" to be in line with FCOM SOPs.
			Update of the V/S of SINK RATE CALLOUT from 1000 ft/min to 1200 ft/min
			Enhancement of the VAPP item layout, for standardization purposes.
			Modification of text in PM functions "TCAS.....TA or TA/RA" now is "TCAS.....TA/RA". SOP LATAM standardization.
			Addition ft note (2), if landing will be performed in FLAP 3 configuration. SOP LATAM standardization.

Continued from the previous page

Localization Title	Page	ID	Reason
			Delete information of PF functions "CABIN CREW.....ADVISE". SOP LATAM standardization.
NP-NP Go Around	12/14	18	**Add PM functions "AFTER TAKEOFF C/L down to the line.....COMPLETE". SOP LATAM standardization.**
			PM functions, delete information "FMA.....CHECK". SOP LATAM standardization.
NP-NP After Landing	13/14	19	**Add of ONE ENGINE TAXI information to PM functions. SOP LATAM standardization.**
			Delete information ONE ENGINE TAXI.....CONSIDER of PF functions. SOP LATAM standardization.
			Change of CP and FO to PF and PM. SOP LATAM standardization.
NP-NP Parking	13/14	20	**"APU BLEED pb-sw.....ON" transferred to CM1 functions. SOP LATAM standardization.**
			"FUEL PUMPS.....OFF" transferred to CM1 functions. SOP LATAM standardization.
			Add "ELAPSED TIME.....STOP" to CM2 functions. SOP LATAM standardization.
			Change of CP and FO to PF and PM. SOP LATAM standardization.
NP-NP Securing the Aircraft	14/14	21	**Add "SECURING THE A/C C/L.....COMPLETE" to CM2 functions. SOP LATAM standardization.**
			Change in "APU MASTER SW.....OFF" to "APU MASTER SW .....AS RQRD". SOP LATAM standardization.
			Update of the technical content for harmonization purpose. The wording associated to the ADIRS is updated for harmonization with the "Cockpit Preparation" section. "ADIRS(1+2+3)" is replaced by "ALL IR MODE selectors".
NP-NCL Emergency Evacuation	NCL.C3	1	Documentation update: Addition of "Emergency Evacuation" documentary unit

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SAFETY EXTERIOR INSPECTION

CM1	CM2
* WHEEL CHOCKS.....CHECK	
* L/G DOORS.....CHECK POSITION	
* APU AREA.....CHECK	

PRELIMINARY COCKPIT PREP

CM1	CM2
DOCUMENTATION AND MAINTENANCE.....VERIFY	EMER EQPT.....CHECK
* C/B PANELS.....CHECK	ENG MODE selector..... CHECK NORM
* GEAR PINS and COVERS.....CHECK ONBOARD/STOWED	* WEATHER RADAR..... OFF
* OEB IN QRH.....CHECK	L/G lever..... DOWN
	Both WIPER selectors..... OFF
	BAT .....CHECK/AUTO
	EXT PWR pb-sw.....AS RQRD
	APU FIRE..... CHECK/TEST
	APU ..... START
	When the APU is AVAIL:
	EXT PWR pb-sw.....AS RQRD
EFB ..... SET	EFB ..... SET
	AIR COND panel.....SET
	* COCKPIT LIGHT.....AS RQRD
	* ECAM RCL pb.....PRESS
	* ECAM OXY PRESS/HYD QTY/ENG OIL QTY ..... CHECK
	FLAPS..... CHECK POSITION
	* SPD BRK lever.....CHECK RET AND DISARMED
	* PARKING BRAKE handle..... ON
	* ACCU/BRAKES PRESS..... CHECK
	ALTN BRAKING..... CHECK
	* OEB IN QRH ..... CHECK
	RAIN REPELLENT..... CHECK
	* C/B PANELS..... CHECK
	* GEAR PINS and COVERS.....CHECK ONBOARD/STOWED
* EXTERIOR WALKAROUND .....PERFORM(1)	

(1) The pilot in command will perform the complete EXTERIOR WALKAROUND procedure when taking on the aircraft. If the aircraft is in TRANSIT STOP, the PM will be responsible for the exterior inspection.

COCKPIT PREPARATION

CM1	CM2
OVERHEAD PANEL:	
* ALL WHITE LIGHTS..... EXTINGUISH	* AIRFIELD DATA..... OBTAIN
* RCDR GND CTL pb-sw..... ON	
CVR TEST pb..... PRESS	

Continued from the previous page

CM1	CM2
CAPT & PURS/CAPT sw.....CAPT	
* ALL IR MODE selector..... NAV	
EXTERIOR LIGHTS..... SET	
* SIGNS..... SET	
PROB/WINDOW HEAT..... AUTO	
LDG ELEV ..... AUTO	
* PACK 1.....OFF	
* PACK 2.....ON	
* PACK FLOW..... AS RQRD	
BAT .....CHECK	
FUEL panel.....AS RQRD	
ENG FIRE.....CHECK/TEST	
AUDIO SWITCH..... NORM	
VENT panel.....CHECK	
PA (3rd occupant).....RECEPT	
MAINT panel..... CHECK	
CTR INSTRUMENT PANEL:	
* ISIS.....CHECK	
* CLOCK..... CHECK/SET	
* A/SKID & N/W STRG sw..... ON	
PEDESTAL:	
ACP .....CHECK	
COCKPIT DOOR..... CHECK	
SWITCHING PANEL..... NORM	
* THRUST LEVERS.....CHECK IDLE	
* ENG MASTERS.....CHECK OFF	
* ENG MODE selector..... CHECK NORM	
* PARKING BRK.....AS RQRD	
GRAVITY GEAR EXTN ..... CHECK STOWED	
* ATC .....SET	
* TCAS ..... ABV	
RMP .....SET	
ATC Clearence..... OBTAIN	
* ACARS ..... INITIALIZE	
	* FMS .....PREPARE
* FMS PREPARATION..... CHECK	
•When both flight crewmembers are seated:	
GLARESHIELD:	GLARESHIELD:
* BAROMETRIC REFERENCE..... SET	* BAROMETRIC REFERENCE..... SET
* FD .....CHECK ON	* FD ..... CHECK ON
* LS .....AS RQRD	* LS ..... AS RQRD
* ND mode and range..... SET	* ND mode and range.....SET
* VOR/ADF selector.....AS RQRD	* VOR/ADF selector..... AS RQRD
* FCU .....SET	
LATERAL CONSOLE:	LATERAL CONSOLE:
OXY MASK.....TEST	OXY MASK..... TEST

Continued from the previous page

CM1	CM2
INSTRUMENT PANEL:	INSTRUMENT PANEL:
PFD-ND brightness.....ADJUST	PFD-ND brightness.....ADJUST
LOUDSPEAKER knob.....SET	LOUDSPEAKER knob.....SET
* PFD-ND .....CHECK	* PFD-ND .....CHECK
* ECAM STATUS.....CHECK	* IRS ALIGN.....CHECK
* LDG ELEV (ECAM).....CHECK AUTO	
* TAKEOFF BRIEFING.....PERFORM (CM 1 TASK)	

BEFORE PUSHBACK OR START

4

CM1	CM2
EFB .....SET	EFB .....SET
LOADSHEET.....CHECK (PF TASK)	
FOB .....CHECK	FOB .....CHECK
TO DATA.....CHECK/REVISE AS RQRD (PF TASK)	
TO DATA.....XCHECK (PM TASK)	
SEATING POSITION.....ADJUST	SEATING POSITION.....ADJUST
FMS PERF TO page.....SELECT (PF TASK)	
FMS F-PLN page .....SELECT (PM TASK)	
EXT PWR .....CHECK AVAIL	
EXT PWR DISCONNECTION .....REQUEST	
BEFORE START C/L down to the line.....COMPLETE	BEFORE START C/L down to the line.....COMPLETE
SAFETY CHECK .....OBTAIN	
	PUSHBACK/START CLEARANCE.....OBTAIN
ATC.....AUTO	
WINDOWS/DOORS.....CHECK CLOSED	WINDOWS/DOORS.....CHECK CLOSED
SLIDES.....CHECK ARMED	SLIDES.....CHECK ARMED
BEACON sw .....ON	
THRUST LEVERS.....IDLE	
NW STRG DISC.....CHECK AS RQRD	
PARK BRK ACCU PRESS.....CHECK	
PARKING BRK .....AS RQRD	
BEFORE START C/L below the line.....COMPLETE	BEFORE START C/L below the line.....COMPLETE
PUSH BACK.....ORDER	
	ELAPSED TIME.....AS RQRD

ONE ENGINE TAXI (IF REQUIRED (1))

5

CM1	CM2
BRAKE ACCU PRESS.....CHECK	
ENG MODE selector.....IGN/START	
ENG 1 START.....ANNOUNCE	
ENG MASTER switch 1.....ON	
ENG IDLE PARAMETERS.....CHECK	
X BLEED.....OPEN	

(1) If One Engine Taxi procedure is not applied, continue with ENGINE START procedure.

ENGINE START (IF REQUIRED (1))

6

7

CM1	CM2
ENG MODE selector.....IGN/START	
ENG 2 START.....ANNOUNCE	
ENG MASTER switch 2.....ON	
ENG IDLE PARAMETERS.....CHECK	
ENG 1 START.....ANNOUNCE	
REPEAT THE START SEQUENCE	

(1) If One Engine Taxi procedure will be performed, do not perform ENGINE START procedure.

AFTER START

8

CM1	CM2
ENG MODE selector..... NORM	
APU BLEED pb-sw .....OFF	GND SPOILERS.....ARM
ENG ANTI ICE pb-sw ..... AS RQRD	RUD TRIM.....ZERO
WING ANTI ICE pb-sw ..... AS RQRD	FLAPS.....SET
APU MASTER SW..... AS RQRD	PITCH TRIM.....SET
X BLEED..... AS RQRD	
PACK 1.....AS RQRD	
Y ELEC PUMP..... AS RQRD	
ECAM STATUS.....CHECK(1)	ECAM STATUS..... CHECK(1)
N/W STEER DISC MEMO.....CHECK NOT DISPLAYED	
CLEAR TO DISCONNECT.....ANNOUNCE	
AFTER START C/L .....COMPLETE	AFTER START C/L ..... COMPLETE

(1) Several STS messages may appear in case of One Engine Taxi.

TAXI

9

PF	PM
EXTERIOR LIGHTS..... SET	TAXI CLEARANCE.....OBTAIN
•Taxi clearance obtained:	
PARKING BRAKE handle.....OFF	
THRUST LEVERS..... AS RQRD	
BRAKES.....CHECK	BRAKES.....CHECK
	•If the One Engine Taxi has been applied:
	ENGINE 2 START
	Y ELEC PUMP.....OFF
	APU BLEED.....ON
	ENG MODE selector.....IGN/START
	ENG 2 START.....ANNOUNCE
	ENG MASTER switch 2.....ON
	ENG IDLE PARAMETERS.....CHECK
	APU BLEED.....OFF
	APU MASTER SW pb-sw .....OFF

Continued from the previous page

PF	PM
	X BLEED ..... AUTO
	ENG MODE selector ..... NORM
	ENG ANTI-ICE pb-sw ..... AS RQRD
	WING ANTI-ICE pb-sw ..... AS RQRD
	ECAM STATUS ..... CHECK
FLT CTL ..... CHECK	FLT CTL ..... CHECK
• ATC clearance obtained:	
	ATC CLEARANCE ..... CONFIRM
	T.O DATA ..... CHECK
	FMS F-PLAN/SPD ..... CHECK
	FCU ALT/HDG ..... SET
	BOTH FD ..... CHECK ON
PFD/ND ..... CHECK	PFD/ND ..... CHECK
TAKEOFF BRIEFING ..... CONFIRM	
	RADAR ..... ON
	PREDICTIVE WINDSHEAR SYSTEM ..... AUTO
	ATC CODE ..... CONFIRM/SET
TERR ON ND ..... AS RQRD	TERR ON ND ..... AS RQRD
	AUTO BRK ..... MAX
	T.O CONFIG pb ..... TEST
	T.O MEMO ..... CHECK NO BLUE
CABIN REPORT ..... RECEIVE	CABIN REPORT ..... RECEIVE
BEFORE TAKEOFF C/L down to the line ..... COMPLETE	BEFORE TAKEOFF C/L down to the line ..... COMPLETE

BEFORE TAKEOFF

10

PF	PM
	BRAKE TEMP ..... CHECK
	BRAKE FAN pb-sw (if brake fan running) ..... OFF
	TAKEOFF/LINE UP CLEARANCE ..... OBTAIN
RWY TURN OFF sw ..... ON	
LAND LIGHTS selector ..... ON	
WING LIGHTS selector ..... ON	
NOSE sw ..... T.O	
	TCAS Mode selector ..... TA/RA
APPROACH PATH ..... CLEARED OF TRAFFIC	APPROACH PATH ..... CLEARED OF TRAFFIC
	CABIN CREW ..... ADVISE
	ENG MODE selector ..... AS RQRD
SLIDING TABLE ..... STOWED	SLIDING TABLE ..... STOWED
TAKEOFF RUNWAY ..... CONFIRM	TAKEOFF RUNWAY ..... CONFIRM
	PACKS 1 ..... CHECK OFF
	PACKS 2 ..... OFF
BEFORE TAKEOFF C/L below the line ..... COMPLETE	BEFORE TAKEOFF C/L below the line ..... COMPLETE

TAKEOFF

11

PF	PM
TAKEOFF.....ANNOUNCE	
BRAKES.....RELEASE	
THRUST LEVERS..... FLX or TOGA	CHRONO.....START
The Captain places hand on thrust levers until V1	
DIRECTIONAL CONTROL.....USE RUDDER	
FMA ..... ANNOUNCE	PFD/ND ..... MONITOR
•BELOW 80 kt:	N1 (EPR)..... CHECK
	THRUST SET..... ANNOUNCE
	PFD and ENG indications..... MONITOR
•AT 100 kt:	ONE HUNDRED KNOTS.....ANNOUNCE
100 kt .....CHECK	
•AT V1 -5KT:	V1 ..... ANNOUNCE
•AT VR:	ROTATION..... ORDER
ROTATION.....PERFORM/ANNOUNCE	
•WHEN POSITIVE CLIMB:	POSITIVE CLIMB..... ANNOUNCE
L/G UP.....ORDER	L/G ..... SELECT UP
AP .....AS RQRD	
•AT THR RED ALT:	
THRUST LEVERS..... CL	PACK 1 .....ON
•AT F SPEED:	
FLAPS 1..... ORDER	FLAPS 1..... SELECT
•AT S SPEED:	
FLAPS 0..... ORDER	FLAPS 0..... SELECT
	GND SPLRS ..... DISARM
	EXTERIOR LIGHTS..... SET
	PACKS 2 ..... ON

AFTER TAKEOFF

12

PF	PM
	APU BLEED pb-sw ..... AS RQRD
	APU MASTER SW .....AS RQRD
	ENG MODE selector..... AS RQRD
	TCAS Mode selector ✲ ..... TA/RA
	ANTI ICE pb-sw ..... AS RQRD
AFTER TAKEOFF/CLIMB C/L down to the line.....COMPLETE	AFTER TAKEOFF/CLIMB C/L down to the line..... COMPLETE

CLIMB

13

PF	PM
MCDU ..... PERF CLB	MCDU ..... F-PLN
FCU/FMGS ..... SET IF AP ON	FCU/FMGS .....SET IF AP OFF

Continued from the previous page

PF	PM
•At transition altitude:	
BAROMETRIC REFERENCE.....SET STD/CROSSCHECK	BAROMETRIC REFERENCE.....SET STD/CROSSCHECK
AFTER TAKEOFF/CLIMB C/L below the line.....COMPLETE	AFTER TAKEOFF/CLIMB C/L below the line.....COMPLETE
RADAR..... ADJUST AS APPROPRIATE	ENG ANTI ICE..... AS RQRD
•At 10 000 ft AFE:	
	WING LIGHTS selector ..... OFF
	SEAT BELTS sw .....AS RQRD
EFIS OPTION.....AS RQRD	EFIS OPTION.....AS RQRD
	ECAM MEMO.....REVIEW
NAVAIDS.....CLEAR	
SEC F-PLN .....AS RQRD	
OPT/MAX ALT .....CHECK	

CRUISE

14

PF	PM
ECAM MEMO/SD PAGES..... REVIEW	
FLIGHT PROGRESS.....CHECK	
FUEL.....MONITOR	
NAVIGATION ACCURACY..... MONITOR	
RADAR..... ADJUST AS APPROPRIATE	
TCAS..... AS RQRD	
EFB ..... SET	EFB ..... SET
CRUISE BRIEFING.....PERFORM	

DESCENT PREPARATION

15

PF	PM
	WEATHER AND LANDING INFORMATION..... OBTAIN
EFB ..... SET	EFB ..... SET
LANDING PERFORMANCE.....CONFIRM	LANDING PERFORMANCE.....CHECK
FMS .....PREPARE	FMS PREPARATION.....CHECK
	GPWS LDG FLAP 3.....AS RQRD
APPR BRIEFING.....PERFORM	
LDG ELEV .....CHECK	
AUTO BRK .....AS RQRD	
TERR ON ND ..... AS RQRD	TERR ON ND ..... AS RQRD
RADAR..... ADJUST AS APPROPRIATE	
TCAS..... BLW	
	ENG ANTI ICE pb-sw .....AS RQRD
	WING ANTI ICE pb-sw .....AS RQRD
	DESCENT CLEARANCE.....OBTAIN
CLEARED ALTITUDE ON FCU .....SET	

DESCENT

16

PF	PM
DESCENT.....INITIATE	
MCDU ..... PROG/PERF DESCENT	MCDU ..... F-PLN
DESCENT.....MONITOR/ADJUST	
•When the aircraft approaches the transition level, and when cleared for an altitude:	
	ECAM STATUS..... CHECK
•At 10 000 ft AFE:	
	WING LIGHTS sw ..... OFF
	CABIN CREW..... ADVISE
	SEAT BELTS sw ..... ON
EFIS option pb ..... CSTR	EFIS option pb ..... CSTR
LS pb .....AS RQRD	LS pb .....AS RQRD
RADIO NAV .....SELECT/IDENT	
	ENG MODE selector ..... AS RQRD
APPROACH C/L down to the line..... COMPLETE	APPROACH C/L down to the line..... COMPLETE
BAROMETRIC REFERENCE..... SET/CROSSCHECK	BAROMETRIC REFERENCE..... SET/CROSSCHECK
•If GPS PRIMARY not available:	
NAV ACCY..... CHECK	
APPROACH C/L below the line.....COMPLETE	APPROACH C/L below the line.....COMPLETE

AIRCRAFT CONFIGURATION FOR APPROACH

17

PF	PM
INITIAL APPROACH:	
F-PLN SEQUENCING.....ADJUST	
•Approx 15 NM from touchdown:	
APPR PHASE ..... ACTIVATE or set green dot (1)	
MANAGED SPEED..... CHECK	
FLIGHT PATH.....MONITOR	NAV ACCURACY.....MONITOR
SPEED BRAKES lever.....AS RQRD	
RADAR..... ADJUST AS APPROPRIATE	
INTERMEDIATE/FINAL APPROACH:	
•At green dot:	
FLAPS 1.....ORDER	FLAPS 1..... SELECT
S SPEED..... CHECK OR SET (1)	
	TCAS ..... TA/RA
•At 2 000 ft AGL minimum:	
FLAPS 2.....ORDER	FLAPS 2..... SELECT
F SPEED..... CHECK OR SET (1)	
•When FLAPS 2:	
L/G DOWN..... ORDER	L/G .....SELECT DOWN
	AUTO BRAKE.....CONFIRM
	GRND SPLRS .....ARM
	EXTERIOR LIGHTS..... SET

Continued from the previous page

PF	PM
•When L/G down:	
FLAPS 3.....ORDER	FLAPS 3.....SELECT
	ECAM WHEEL PAGE.....CHECK
•When FLAPS 3:	
FLAPS FULL.....ORDER *(2)*	FLAPS FULL.....SELECT *(2)*
SPEED TARGET..... CHECK OR SET *(1)*	
	A/THR .....CHECK SPD or OFF
	WING A. ICE (if not required).....OFF
SLIDING TABLE ..... STOW	SLIDING TABLE ..... STOW
	LDG MEMO.....CHECK NO BLUE
CABIN REPORT.....RECEIVE	CABIN REPORT.....RECEIVE
	CABIN CREW..... ADVISE
LDG C/L ..... COMPLETE	LDG C/L ..... COMPLETE
ANNOUNCE ANY FMA MODIFICATION	FLT PARAMETERS..... MONITOR
	Announce any deviation in excess of: • V/S: 1 200 ft/min • IAS: speed target +10 kt; speed target -5 kt • PITCH: 2.5 ° nose down; 10 ° nose up • BANK: 7 °

(1) PF if AP is ON, PM if AP is OFF. The PF may request that this action is performed by the PM depending on the situation.

(2) FLAP FULL selection may be skipped if landing will be performed in FLAP 3 configuration.

APPROACH USING LOC G/S GUIDANCE

PF	PM
INITIAL/INTERMEDIATE APPROACH:	
APPR pb on FCU ..... PRESS	
BOTH AP ..... ENGAGE	
LOC ..... CHECK ARMED	
G/S .....CHECK ARMED	
LOC CAPTURE..... MONITOR	
G/S CAPTURE..... MONITOR	
GO AROUND.....SET *(1)*	
FINAL APPROACH:	
	FLT PARAMETERS..... MONITOR
	Announce any deviation in excess of: • LOC: ½ dot • GLIDE: ½ dot
•At minimum +100 ft:	ONE HUNDRED ABOVE..... ANNOUNCE
•At minimum:	
CONTINUE OR GO-AROUND.....ANNOUNCE	MINIMUM.....MONITOR OR ANNOUNCE

(1) PF if AP is ON, PM if AP is OFF. The PF may request that this action is performed by the PM depending on the situation.

APPROACH USING FINAL APP GUIDANCE

PF	PM
DESCENT PREPARATION:	
	WEATHER AND LANDING INFO.....OBTAIN
F-PLN A Page.....CHECK	F-PLN A Page.....CHECK
PROG Page.....COMPLETE	PROG Page.....COMPLETE
GO AROUND STRATEGY.....REVIEW	
DESCENT:	
•At 10 000 ft:	
NAV ACCURACY.....CHECK	
•For RNAV(GNSS):	
GPS PRIMARY.....CHECK	
BARO REF .....SET	
INITIAL/INTERMEDIATE/FINAL APPROACH:	
POSITION.....MONITOR	
APPR pb on FCU .....PRESS	
APP NAV .....CHECK ARMED or ENGAGED	
FINAL.....CHECK ARMED	
•At Final Descent Point:	
FINAL APP .....CHECK ENGAGED	
GO AROUND ALT .....SET *(1)*	
	FLT PARAMETERS.....MONITOR Announce any deviation in excess of: • XTK>0.1 nm • V/DEV> ½ dot
•At minimum +100 ft:	ONE HUNDRED ABOVE.....MONITOR OR ANNOUNCE
•At minimum:	
CONTINUE OR GO-AROUND.....ANNOUNCE	MINIMUM.....MONITOR OR ANNOUNCE

(1) PF if AP is ON, PM if AP is OFF. The PF may request that this action is performed by the PM depending on the situation.

APPROACH USING FINAL APP GUIDANCE FOR RNAV(RNP)

PF	PM
DESCENT PREPARATION:	
	WEATHER AND LANDING INFO.....OBTAIN
NAVAID .....DESELECT	
PROG Page.....COMPLETE	PROG Page.....COMPLETE
GO AROUND STRATEGY.....REVIEW	
DESCENT:	
GPS PRIMARY ON BOTH FMS .....CHECK	
GPS 1+2.....CHECK BOTH IN NAV	
TERR on ND .....AS RQRD	
INITIAL/INTERMEDIATE/FINAL APPROACH:	
BARO REF/ALTIMETER.....CHECK	
FD or AP/FD .....USE FOR APPROACH	
L/DEV .....CHECK DISPLAYED	

Continued from the previous page

PF	PM
APPR pb on FCU ..... PRESS	
APP NAV .....CHECK ARMED or ENGAGED	
FINAL.....CHECK ARMED	
•At the Final Descent Point:	
FINAL APP ..... CHECK ENGAGED	
GO AROUND ALT .....SET *(1)*	
	FLT PARAMETERS..... MONITOR
	Announce any deviation in excess of: • L/DEV : 1 dot or XTK : ½ RNP (whichever occurs first) • V/DEV> ½ dot
•At minimum +100 ft:	ONE HUNDRED ABOVE..... MONITOR OR ANNOUNCE
•At minimum:	
CONTINUE OR GO-AROUND.....ANNOUNCE	MINIMUM..... MONITOR OR ANNOUNCE

(1) PF if AP is ON, PM if AP is OFF. The PF may request that this action is performed by the PM depending on the situation.

APPROACH USING FPA GUIDANCE

PF	PM
DESCENT PREPARATION:	
F-PLN A Page..... CHECK	F-PLN A Page..... CHECK
PROG Page.....COMPLETE	PROG Page.....COMPLETE
GO AROUND STRATEGY.....REVIEW	
DESCENT:	
•At 10 000 ft:	
NAV ACCURACY..... CHECK	
•For RNAV(GNSS):	
GPS PRIMARY..... CHECK	
INITIAL/INTERMEDIATE/FINAL APPROACH:	
LATERAL GUIDANCE MODE.....SET FOR APPROACH	
•For LOC ONLY and ILS G/S OUT	
LOC pb-sw ..... PRESS	
LOC ..... CHECK ARMED	
•For back course localizer approaches:	
TRK FPA MODE..... USE FOR APPROACH	
LATERAL path..... INTERCEPT	
TRK FPA (Bird)..... SELECT	
FPA FOR FINAL APPROACH..... SET	
•At 0.3 nm from the Final Descent Point:	
FPA selector ..... PULL	
FPA .....CHECK ENGAGED	
POSITION/FLT PATH..... MONITOR / ADJUST	
GO AROUND ALT ..... SET *(1)*	
	FLT PARAMETERS..... MONITOR

Continued from the previous page

PF	PM
	Announce any deviation in excess of: • Approach using NAV MODE : XTK>0.1 nm • Approach using LOC MODE : LOC ½ dot • Approach using TRK MODE : ■ VOR: ½ dot or 2.5 ° ■ NDB: 5 °
•At minimum +100 ft:	ONE HUNDRED ABOVE..... MONITOR OR ANNOUNCE
•At minimum:	
CONTINUE OR GO-AROUND..... ANNOUNCE	MINIMUM..... MONITOR OR ANNOUNCE

(1) PF if AP is ON, PM if AP is OFF. The PF may request that this action is performed by the PM depending on the situation.

LANDING

PF	PM
•In stabilized approach conditions, at approx. 30 ft:	
FLARE..... PERFORM	ATTITUDE..... MONITOR
THRUST LEVERS.....IDLE	
•At touchdown:	
DEROTATION..... INITIATE	
BOTH THRUST LEVERS.....REV MAX or REV IDLE	GRND SPLRS.....CHECK/ANNOUNCE
	REVERSERS..... CHECK/ANNOUNCE
DIRECTIONAL CONTROL.....ENSURE	DIRECTIONAL CONTROL.....MONITOR
BRAKES..... AS RQRD	DECELERATION.....CHECK/ANNOUNCE
•At 70 kt:	
BOTH THRUST LEVERS..... REV IDLE	70 kt .....ANNOUNCE
•At taxi speed:	
BOTH THRUST LEVERS..... FWD IDLE	
•Before 20 kt:	
AUTOBRK.....DISENGAGE	

GO AROUND

18

PF	PM
THRUST LEVERS..... TOGA	
ROTATION..... PERFORM	
GO-AROUND.....ANNOUNCE	FLAPS lever ..... SELECT AS RQRD
FMA ..... ANNOUNCE	
	POSITIVE CLIMB..... ANNOUNCE
L/G UP.....ORDER	L/G ..... SELECT UP
AP .....AS RQRD	
NAV or HDG mode.....AS RQRD	
•AT GA THR RED ALT:	
THRUST LEVERS..... CL	
•AT GA ACCEL ALT:	
SPEED.....MONITOR	

Continued from the previous page

PF	PM
•AT F SPEED:	
FLAPS 1 ..... ORDER	FLAPS 1 ..... SELECT
•AT S SPEED:	
FLAPS 0 ..... ORDER	FLAPS 0 ..... SELECT
	GND SPLRS ..... DISARM
	EXTERIOR LIGHTS ..... SET
AFTER TAKEOFF C/L down to the line ..... COMPLETE	AFTER TAKEOFF C/L down to the line ..... COMPLETE

AFTER LANDING

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PF	PM
GRND SPLRS ..... DISARM	
EXTERIOR LIGHTS ..... SET	
	RADAR ..... OFF/STBY
	PREDICTIVE WINDSHEAR ..... OFF
	ENG MODE selector ..... NORM
	FLAPS ..... RETRACTED
	TCAS ..... SET on standby
	ATC ..... AS RQRD
	TERR ON ND ..... OFF
	PACK 2 ..... OFF
	APU ..... START
	ANTI ICE ..... AS RQRD
	BRAKE TEMP ..... CHECK
AFTER LDG C/L ..... COMPLETE	AFTER LDG C/L ..... COMPLETE
	•If the One Engine Taxi will be applied:
	ENGINE 2 SHUTDOWN
	ENG 2 MASTER ..... OFF
	Y ELEC PUMP ..... ON

PARKING

20

PF	PM
ACCU PRESS ..... CHECK	ANTI-ICE ..... OFF
PARKING BRAKE handle ..... ON	
APU BLEED pb-sw ..... ON	ELAPSED TIME ..... STOP
•If the One Engine Taxi was applied:	
Y ELEC PUMP ..... OFF	
ENG 1 MASTER sw ..... OFF	
ENG 2 MASTER sw ..... CHECK OFF/OFF	
SLIDES DISARMED ..... ORDER	
	SLIDES DISARMED ..... ANNOUNCE
SLIDES DISARMED ..... CHECK	

Continued from the previous page

PF		PM	
BEACON light	OFF		
SEAT BELTS sw	OFF		
FUEL PUMPS	OFF		
EXTERIOR LIGHTS	SET	ATC	SET on standby
GROUND CONTACT	ESTABLISH	IRS PERFORMANCE	CHECK
		FUEL QTY	CHECK
		STATUS	CHECK
PARKING BRK	AS RQRD	BRAKE FAN ✻	OFF
DUs	DIM	DUs	DIM
PARKING C/L	COMPLETE	PARKING C/L	COMPLETE

SECURING THE AIRCRAFT

21

CM1		CM2	
EFB ✻	SET	EFB ✻	SET
PARKING BRK	CHECK ON		
ALL IR MODE selectors	OFF	OXY CREW SUPPLY pb	OFF
		EXTERIOR LIGHTS	OFF
		MAINT BUS SW	AS RQRD
		APU BLEED pb-sw	OFF
		APU MASTER SW	AS RQRD
		EMER EXIT LT sw	OFF
		SIGNS sw	OFF
		EXT PWR pb	AS RQRD
		BAT 1+2	AS RQRD
SECURING THE A/C C/L	COMPLETE	SECURING THE A/C C/L	COMPLETE

Continued from the previous page

Localization Title	Page	ID	Reason
PER-C Method to Determine Aircraft Performance at Landing without or with a Single Failure	1/6	1	Clarification of the title.

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SPEEDS

OPERATING SPEEDS (KT)

CG ≥ 25 %

Weight (1000 KG)	F	S	Green dot FL < 200 (1)	VLS CONF 3	VREF
40	117	152	165	110	106
44	122	159	173	115	111
48	128	166	181	120	116
52	133	173	189	125	121
56	138	179	197	130	125
60	143	185	205	135	130
64	148	192	213	139	134
68	152	197	221	143	138
72	157	203	229	147	142
76	161	209	237	151	146
78	163	211	241	153	148

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

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

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USE OF FUEL PENALTY FACTOR TABLES

USE OF THE FUEL PENALTY FACTORS

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

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

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

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

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

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

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

METHODOLOGY

The methodology is the following:

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

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

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

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

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

Example:

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

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

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

FUEL PENALTY FACTORS/ECAM ALERT TABLE

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

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 *(1)* Right elevator is failed RAT extended	3 % to 10 % *(4)*
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

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

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

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

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

FUEL PENALTY FACTORS/INOP SYS TABLE

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

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METHOD TO DETERMINE AIRCRAFT PERFORMANCE AT LANDING WITHOUT OR WITH A SINGLE FAILURE

1

Use the following method to determine the runway landing performance level, the FLAPS lever position for landing, the VAPP, and the Factored Landing Distance (FLD):

RUNWAY LANDING PERFORMANCE LEVEL - CODE
Use the Runway Condition Assessment Matrix to determine the runway landing performance level and code.

FLAPS LEVER POSITION FOR LANDING
Select the FLAPS lever position requested by the ECAM*.

* If there are no ECAM instructions, the FLAPS lever position for landing is at the flight crew's discretion.

VAPP
Determine the VAPP.

FACTORED LANDING DISTANCE (FLD)

LANDING DISTANCE **(LD)**
Determine the Landing Distance **(LD)** using the appropriate Landing Distance table.

X

MEL LANDING PENALTY FACTOR
Multiply **LD** by the landing penalty factor specified in the MEL, if any.

X

SAFETY MARGIN
Add a margin, as per airline policy. Airbus recommends a 15% margin. Under exceptional circumstances, the flight crew may disregard this margin.

⇩

FACTORED LANDING DISTANCE **(FLD)**
FLD = LD x MEL LANDING PENALTY FACTOR x SAFETY MARGIN

METHOD TO DETERMINE AIRCRAFT PERFORMANCE AT LANDING WITH SEVERAL FAILURES

Use the following method to determine the runway landing performance level, the FLAPS lever position for landing, the VAPP, and the Factored Landing Distance (FLD):

RUNWAY LANDING PERFORMANCE LEVEL - CODE

Use the Runway Condition Assessment Matrix to determine the runway landing performance level and code.

FLAPS LEVER POSITION FOR LANDING

Select the FLAPS lever position requested by the ECAM*.

* If there are no ECAM instructions, the FLAPS lever position for landing is at the flight crew's discretion.

VAPP

Determine the VAPP using the highest ΔVREF.

FACTORED LANDING DISTANCE (FLD)

DETERMINE THE LANDING DISTANCE (LDG DIST) OF THE FAILURE THAT HAS THE MOST EFFECT

1 - Identify the failure with the longest REF DIST

2 - Calculate the landing distance **(LDG DIST)** for this failure taking into account all corrections.

+

DETERMINE THE EFFECT OF THE OTHER FAILURE (ΔLD)

1 - Identify the [REF DIST with failure] of the other failure (no correction)**

2 - Calculate **ΔLD** = [REF DIST with failure] - [REF DIST without failure].

** Use the FLAPS lever position selected for landing. If not available, use FLAPS 3.

⇩

DETERMINE THE LANDING DISTANCE WITH SEVERAL FAILURES (LD)

LD = LDG DIST + ΔLD

X

MEL LANDING PENALTY FACTOR

Multiply **LD** by the landing penalty factor specified in the MEL, if any.

X

SAFETY MARGIN

Add a margin, as per airline policy.

Airbus recommends a 15% margin. Under exceptional circumstances, the flight crew may disregard this margin.

⇩

FACTORED LANDING DISTANCE (FLD)

FLD = LD x MEL LANDING PENALTY FACTOR x SAFETY MARGIN

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

Runway Surface Conditions		Observations on Deceleration and Directional Control	Related Landing Performance		Maximum Crosswind (Gust included)
Runway State or / and Runway Contaminant	ESF* or PIREP**		Code	Level	
Dry	–	–	**6**	**DRY**	38kt
Damp **Wet** Up to 3 mm (1/8") of water	**Good**	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**5**	**GOOD**	38kt
Slush Up to 3 mm (1/8") **Dry snow** Up to 3 mm (1/8") **Wet snow** Up to 3 mm (1/8") **Frost**					29kt
Compacted Snow OAT at or below -15°C	**Good to Medium**	Braking deceleration and controllability is between Good and Medium.	**4**	**GOOD TO MEDIUM**	29kt
Dry Snow More than 3 mm (1/8"), up to 100 mm (4") **Wet Snow** More than 3 mm (1/8"), up to 30 mm (6/5") **Compacted Snow** OAT above -15°C **Slippery when wet**	**Medium**	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be reduced.	**3**	**MEDIUM**	25kt
Water More than 3 mm (1/8"), up to 12.7 mm (1/2") **Slush** More than 3 mm (1/8"), up to 12.7 mm (1/2")	**Medium to Poor**	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**2**	**MEDIUM TO POOR**	20kt
Ice (cold & dry)	**Poor**	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**1**	**POOR**	15kt
Wet ice **Water on top of Compacted Snow** **Dry Snow or Wet Snow over ice**	**Nil**	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	–	–	–

**ESF: Estimated Surface Friction*
***PIREP: Pilot Report of Braking Action*

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

VAPP DETERMINATION WITHOUT FAILURE

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

VAPP = VLS + APPR COR

VLS												
Weight (T)		40	42	46	50	54	58	62	66	70	74	78
VLS CONF FULL (kt) (=VREF)	CG < 25%	108	111	116	121	125	130	134	138	142	146	150
	CG ≥ 25%	106	109	114	119	123	128	132	136	140	144	148
VLS CONF 3 (kt)	CG < 25%	112	115	119	125	129	135	139	143	147	151	155
	CG ≥ 25%	110	113	117	123	127	133	137	141	145	149	153

+

APPRoach **COR**rection

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

⇩

VAPP

VAPP = VLS + APPR COR

⇩

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

- If APPR COR is equal to 1/3 Headwind component: **No SPD**
- If APPR COR is greater than 1/3 Headwind component: **SPD = APPR COR**

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

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

VAPP DETERMINATION WITH FAILURE

VAPP = VREF + ΔVREF + APPR COR

VREF											
Weight (T)		40	42	46	50	54	58	62	66	70	74	78
VREF = VLS CONF FULL (kt)	CG < 25%	108	111	116	121	125	130	134	138	142	146	150
	CG ≥ 25%	106	109	114	119	123	128	132	136	140	144	148

+

ΔVREF

Refer to the applicable Landing Distance table

+

APPRoach **COR**rection

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

⇩

VAPP

VAPP = VREF + ΔVREF + APPR COR

⇩

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

- If APPR COR is equal to 1/3 Headwind component: **No SPD**
- If APPR COR is greater than 1/3 Headwind component: **SPD = APPR COR**

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

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LANDING DISTANCE WITHOUT FAILURE

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), VAPP=VLS without APPR COR.

6 - DRY										
Corrections on Landing Distance (m)			**WGT(2)**	**SPD**	**ALT**	**WIND**	**TEMP**	**SLOPE**	**REV**	**OVW**
Braking Mode	**LDG CONF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
Maximum MANUAL	FULL	**1 090**	+ 50	+ 70	+ 40	+ 120	+ 30	+ 20	- 10	+ 780
	3	**1 170**	+ 50	+ 80	+ 40	+ 130	+ 40	+ 20	- 10	+ 940
AUTOBRAKE MED	FULL	**1 370**	+ 30	+ 90	+ 50	+ 130	+ 50	+ 10	0	+ 230
	3	**1 450**	+ 40	+ 100	+ 50	+ 140	+ 50	+ 10	0	+ 250
AUTOBRAKE LOW	FULL	**1 950**	+ 40	+ 140	+ 70	+ 200	+ 70	+ 30	- 10	+ 260
	3	**2 090**	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10	+ 290

(1) Automatic Landing correction: if CONF FULL, add 280m. If CONF 3, add 300m.
(2) Weight correction: subtract 10m per 1T below 66T.

5 - GOOD										
Corrections on Landing Distance (m)			**WGT(2)**	**SPD**	**ALT**	**WIND**	**TEMP**	**SLOPE**	**REV**	**OVW**
Braking Mode	**LDG CONF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
Maximum MANUAL	FULL	**1 410**	+ 50	+ 110	+ 70	+ 210	+ 60	+ 50	- 30	+ 620
	3	**1 550**	+ 50	+ 120	+ 80	+ 230	+ 70	+ 60	- 40	+ 750
AUTOBRAKE MED	FULL	**1 460**	+ 50	+ 110	+ 70	+ 210	+ 60	+ 50	- 10	+ 220
	3	**1 610**	+ 50	+ 120	+ 80	+ 230	+ 70	+ 60	- 30	+ 240
AUTOBRAKE LOW	FULL	**1 950**	+ 40	+ 140	+ 70	+ 200	+ 70	+ 30	- 10	+ 260
	3	**2 090**	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10	+ 280

(1) Automatic Landing correction: if CONF FULL, add 310m. If CONF 3, add 330m.
(2) Weight correction: if CONF FULL, subtract 10m per 1T below 66T. If CONF 3, subtract 20m per 1T below 66T.

4 - GOOD TO MEDIUM										
Corrections on Landing Distance (m)			**WGT(2)**	**SPD**	**ALT**	**WIND**	**TEMP**	**SLOPE**	**REV**	**OVW**
Braking Mode	**LDG CONF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
Maximum MANUAL	FULL	**1 660**	+ 40	+ 90	+ 60	+ 190	+ 60	+ 70	- 70	+ 690
	3	**1 810**	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 80	+ 840
AUTOBRAKE MED	FULL	**1 720**	+ 40	+ 90	+ 60	+ 200	+ 50	+ 70	- 90	+ 210

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4 - GOOD TO MEDIUM

Corrections on Landing Distance (m)			WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
Braking Mode	**LDG CONF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
	3	**1 870**	+ 40	+ 100	+ 70	+ 200	+ 70	+ 90	- 110	+ 210
AUTOBRAKE LOW	FULL	**1 960**	+ 40	+ 140	+ 70	+ 210	+ 70	+ 50	- 20	+ 260
	3	**2 100**	+ 50	+ 140	+ 80	+ 220	+ 70	+ 60	- 30	+ 290

(1) Automatic Landing correction: if CONF FULL, add 310m. If CONF 3, add 320m.
(2) Weight correction: if CONF FULL, subtract 10m per 1T below 66T. If CONF 3, subtract 20m per 1T below 66T.

3 - MEDIUM

Corrections on Landing Distance (m)			WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
Braking Mode	**LDG CONF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
Maximum MANUAL	FULL	**1 860**	+ 40	+ 100	+ 70	+ 220	+ 60	+ 110	- 90	+ 660
	3	**2 030**	+ 50	+ 110	+ 80	+ 230	+ 80	+ 120	- 110	+ 800
AUTOBRAKE MED	FULL	**1 920**	+ 40	+ 100	+ 70	+ 230	+ 60	+ 110	- 120	+ 210
	3	**2 100**	+ 40	+ 110	+ 80	+ 240	+ 80	+ 130	- 150	+ 220
AUTOBRAKE LOW	FULL	**2 060**	+ 40	+ 130	+ 80	+ 240	+ 70	+ 90	- 60	+ 250
	3	**2 220**	+ 50	+ 140	+ 80	+ 240	+ 80	+ 110	- 80	+ 270

(1) Automatic Landing correction: if CONF FULL, add 320m. If CONF 3, add 330m.
(2) Weight correction: subtract 20m per 1T below 66T.

2 - MEDIUM TO POOR

Corrections on Landing Distance (m)			WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
Braking Mode	**LDG CONF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
Maximum MANUAL	FULL	**2 080**	+ 70	+ 160	+ 110	+ 360	+ 110	+ 150	- 100	+ 480
	3	**2 380**	+ 80	+ 180	+ 140	+ 410	+ 130	+ 200	- 130	+ 570
AUTOBRAKE MED	FULL	**2 110**	+ 70	+ 160	+ 120	+ 370	+ 110	+ 160	- 130	+ 240
	3	**2 390**	+ 80	+ 200	+ 140	+ 420	+ 130	+ 210	- 170	+ 280
AUTOBRAKE LOW	FULL	**2 140**	+ 70	+ 160	+ 120	+ 370	+ 100	+ 160	- 60	+ 250
	3	**2 420**	+ 80	+ 190	+ 140	+ 420	+ 130	+ 210	- 120	+ 290

(1) Automatic Landing correction: if CONF FULL, add 350m. If CONF 3, add 370m.
(2) Weight correction: if CONF FULL, subtract 20m per 1T below 66T. If CONF 3, subtract 30m per 1T below 66T.

1 - POOR

Corrections on Landing Distance (m)			WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
Braking Mode	**LDG CONF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
Maximum MANUAL	FULL	**3 450**	+ 70	+ 150	+ 130	+ 560	+ 160	+ 920	- 320	+ 480
	3	**3 970**	+ 80	+ 160	+ 150	+ 610	+ 180	+ 1 150	- 430	+ 570
AUTOBRAKE MED	FULL	**3 510**	+ 70	+ 140	+ 130	+ 570	+ 160	+ 930	- 380	+ 240

Continued from the previous page

1 - POOR										
Corrections on Landing Distance (m)			**WGT(2)**	**SPD**	**ALT**	**WIND**	**TEMP**	**SLOPE**	**REV**	**OVW**
Braking Mode	**LDG CONF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
	3	**4 020**	+ 80	+ 170	+ 150	+ 610	+ 180	+ 1 150	- 510	+ 280
AUTOBRAKE LOW	FULL	**3 540**	+ 70	+ 140	+ 130	+ 580	+ 150	+ 940	- 380	+ 250
	3	**4 040**	+ 80	+ 170	+ 150	+ 610	+ 190	+ 1 150	- 520	+ 290

(1) Automatic Landing correction: if CONF FULL, add 350m. If CONF 3, add 360m.
(2) Weight correction: if CONF FULL, subtract 30m per 1T below 66T. If CONF 3, subtract 40m per 1T below 66T.

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LANDING DISTANCE WITH FAILURE

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

6 - DRY											
Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
AC BUS 1 FAULT	FULL	0	**1 140**	+ 40	+ 70	+ 40	+ 130	+ 40	+ 20	- 10	+ 780
	3	6	**1 230**	+ 50	+ 80	+ 40	+ 120	+ 50	+ 30	- 20	+ 930
DC BUS 2 FAULT	FULL	0	**1 250**	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 20	+ 820
	3	6	**1 320**	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 30	+ 970
DC BUS 1+2 FAULT	FULL	0	**2 040**	+ 80	+ 110	+ 70	+ 210	+ 70	+ 110	INOP	+ 740
	3	6	**2 240**	+ 80	+ 120	+ 80	+ 230	+ 70	+ 120	INOP	+ 880
DC ESS BUS FAULT with no Ice Accretion	FULL	0	**1 140**	+ 40	+ 70	+ 40	+ 130	+ 40	+ 20	- 10	+ 780
	3	6	**1 230**	+ 50	+ 90	+ 50	+ 120	+ 50	+ 30	- 20	+ 930
DC ESS BUS FAULT with Ice Accretion	FULL	10	**1 270**	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 20	+ 610
	3	16	**1 380**	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20	+ 780
DC ESS SHED BUS with Ice Accretion	FULL	10	**1 260**	+ 40	+ 70	+ 50	+ 130	+ 40	+ 20	- 10	+ 600
	3	16	**1 370**	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20	+ 770
DC EMER CONFIG (Calculated with 140kt min)	FULL	0 / 140kt	**2 130**	+ 70	+ 110	+ 70	+ 220	+ 70	+ 110	INOP	+ 670
	3	6 / 140kt	**2 250**	+ 80	+ 120	+ 80	+ 230	+ 70	+ 120	INOP	+ 880
ELEC EMER CONFIG (Calculated with 140kt min)	3	10 / 140kt	**2 280**	+ 80	+ 120	+ 80	+ 220	+ 80	+ 110	INOP	+ 820

(1) Automatic Landing correction: add 180m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 090m

5 - GOOD											
Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
AC BUS 1 FAULT	FULL	0	**1 510**	+ 50	+ 120	+ 70	+ 220	+ 70	+ 60	- 40	+ 580
	3	6	**1 680**	+ 50	+ 130	+ 90	+ 240	+ 80	+ 70	- 60	+ 690
DC BUS 2 FAULT	FULL	0	**1 750**	+ 60	+ 170	+ 100	+ 270	+ 80	+ 100	- 80	+ 580
	3	6	**1 920**	+ 60	+ 180	+ 110	+ 290	+ 100	+ 110	- 90	+ 700
DC BUS 1+2 FAULT	FULL	0	**2 120**	+ 70	+ 160	+ 100	+ 290	+ 90	+ 150	INOP	+ 600
	3	6	**2 340**	+ 80	+ 180	+ 110	+ 310	+ 100	+ 170	INOP	+ 720
DC ESS BUS FAULT with no Ice Accretion	FULL	0	**1 520**	+ 50	+ 120	+ 80	+ 230	+ 60	+ 60	- 40	+ 570
	3	6	**1 690**	+ 50	+ 140	+ 90	+ 250	+ 80	+ 70	- 60	+ 680

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ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

DC ESS BUS FAULT with Ice Accretion	FULL	10	**1 700**	+ 50	+ 130	+ 90	+ 240	+ 80	+ 70	- 60	+ 450
	3	16	**1 900**	+ 60	+ 130	+ 100	+ 260	+ 80	+ 80	- 80	+ 560
DC ESS SHED BUS with Ice Accretion	FULL	10	**1 640**	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 40	+ 450
	3	16	**1 820**	+ 50	+ 120	+ 90	+ 240	+ 80	+ 70	- 60	+ 570
DC EMER CONFIG (Calculated with 140kt min)	FULL	0 / 140kt	**2 230**	+ 60	+ 160	+ 110	+ 300	+ 90	+ 150	INOP	+ 530
	3	6 / 140kt	**2 350**	+ 80	+ 180	+ 110	+ 310	+ 100	+ 170	INOP	+ 710
ELEC EMER CONFIG (Calculated with 140kt min)	3	10 / 140kt	**2 390**	+ 80	+ 170	+ 110	+ 300	+ 110	+ 160	INOP	+ 670

(1) Automatic Landing correction: add 190m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 410m

4 - GOOD TO MEDIUM

Corrections on Landing Distance (m)				**WGT(2)**	**SPD**	**ALT**	**WIND**	**TEMP**	**SLOPE**	**REV**	**OVW**
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
AC BUS 1 FAULT	FULL	0	**1 760**	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 70	+ 670
	3	6	**1 930**	+ 40	+ 110	+ 70	+ 210	+ 70	+ 90	- 90	+ 800
DC BUS 2 FAULT	FULL	0	**2 040**	+ 40	+ 140	+ 80	+ 220	+ 80	+ 130	- 140	+ 670
	3	6	**2 210**	+ 40	+ 140	+ 80	+ 230	+ 80	+ 140	- 160	+ 820
DC BUS 1+2 FAULT	FULL	0	**2 240**	+ 50	+ 140	+ 80	+ 240	+ 80	+ 150	INOP	+ 680
	3	6	**2 440**	+ 60	+ 150	+ 90	+ 250	+ 80	+ 170	INOP	+ 820
DC ESS BUS FAULT with no Ice Accretion	FULL	0	**1 790**	+ 40	+ 110	+ 70	+ 200	+ 60	+ 90	- 110	+ 660
	3	6	**1 970**	+ 40	+ 110	+ 70	+ 220	+ 70	+ 100	- 130	+ 800
DC ESS BUS FAULT with Ice Accretion	FULL	10	**1 970**	+ 40	+ 100	+ 70	+ 210	+ 60	+ 100	- 120	+ 520
	3	16	**2 150**	+ 40	+ 110	+ 80	+ 210	+ 80	+ 110	- 150	+ 670
DC ESS SHED BUS with Ice Accretion	FULL	10	**1 870**	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 80	+ 530
	3	16	**2 050**	+ 40	+ 90	+ 80	+ 200	+ 70	+ 90	- 90	+ 670
DC EMER CONFIG (Calculated with 140kt min)	FULL	0 / 140kt	**2 350**	+ 40	+ 140	+ 90	+ 240	+ 80	+ 160	INOP	+ 610
	3	6 / 140kt	**2 440**	+ 60	+ 150	+ 90	+ 240	+ 90	+ 170	INOP	+ 820
ELEC EMER CONFIG (Calculated with 140kt min)	3	10 / 140kt	**2 470**	+ 60	+ 140	+ 90	+ 240	+ 90	+ 150	INOP	+ 770

(1) Automatic Landing correction: add 190m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 660m

3 - MEDIUM

Corrections on Landing Distance (m)	**WGT(2)**	**SPD**	**ALT**	**WIND**	**TEMP**	**SLOPE**	**REV**	**OVW**

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
AC BUS 1 FAULT	FULL	0	**1 970**	+ 40	+ 110	+ 70	+ 230	+ 70	+ 120	- 100	+ 630
	3	6	**2 180**	+ 40	+ 120	+ 80	+ 240	+ 80	+ 140	- 120	+ 750
DC BUS 2 FAULT	FULL	0	**2 330**	+ 50	+ 150	+ 90	+ 270	+ 80	+ 190	- 200	+ 630
	3	6	**2 530**	+ 50	+ 160	+ 100	+ 280	+ 90	+ 210	- 230	+ 770
DC BUS 1+2 FAULT	FULL	0	**2 520**	+ 50	+ 160	+ 90	+ 280	+ 90	+ 220	INOP	+ 640
	3	6	**2 760**	+ 50	+ 170	+ 100	+ 300	+ 90	+ 240	INOP	+ 780
DC ESS BUS FAULT with no Ice Accretion	FULL	0	**2 030**	+ 40	+ 120	+ 80	+ 240	+ 70	+ 130	- 170	+ 620
	3	6	**2 250**	+ 40	+ 120	+ 90	+ 260	+ 80	+ 160	- 200	+ 750
DC ESS BUS FAULT with Ice Accretion	FULL	10	**2 220**	+ 40	+ 110	+ 80	+ 250	+ 80	+ 140	- 180	+ 490
	3	16	**2 450**	+ 40	+ 120	+ 90	+ 260	+ 90	+ 160	- 220	+ 630
DC ESS SHED BUS with Ice Accretion	FULL	10	**2 080**	+ 40	+ 100	+ 80	+ 230	+ 80	+ 110	- 110	+ 500
	3	16	**2 300**	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 130	+ 630
DC EMER CONFIG (Calculated with 140kt min)	FULL	0 / 140kt	**2 630**	+ 30	+ 160	+ 100	+ 280	+ 100	+ 230	INOP	+ 570
	3	6 / 140kt	**2 760**	+ 50	+ 170	+ 100	+ 290	+ 100	+ 240	INOP	+ 780
ELEC EMER CONFIG (Calculated with 140kt min)	3	10 / 140kt	**2 760**	+ 50	+ 160	+ 100	+ 280	+ 100	+ 210	INOP	+ 720

(1) Automatic Landing correction: add 200m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 860m

2 - MEDIUM TO POOR

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
AC BUS 1 FAULT	FULL	0	**2 250**	+ 70	+ 170	+ 120	+ 380	+ 120	+ 180	- 120	+ 430
	3	6	**2 600**	+ 80	+ 200	+ 150	+ 430	+ 150	+ 240	- 150	+ 500
DC BUS 2 FAULT	FULL	0	**2 730**	+ 90	+ 250	+ 170	+ 500	+ 160	+ 330	- 240	+ 420
	3	6	**3 150**	+ 100	+ 280	+ 200	+ 570	+ 190	+ 440	- 300	+ 490
DC BUS 1+2 FAULT	FULL	0	**2 860**	+ 90	+ 260	+ 180	+ 540	+ 160	+ 380	INOP	+ 410
	3	6	**3 320**	+ 100	+ 290	+ 220	+ 630	+ 190	+ 510	INOP	+ 480
DC ESS BUS FAULT with no Ice Accretion	FULL	0	**2 330**	+ 80	+ 180	+ 140	+ 420	+ 120	+ 210	- 190	+ 400
	3	6	**2 700**	+ 90	+ 220	+ 170	+ 490	+ 150	+ 280	- 240	+ 460
DC ESS BUS FAULT with Ice Accretion	FULL	10	**2 600**	+ 80	+ 170	+ 150	+ 430	+ 130	+ 230	- 220	+ 340
	3	16	**3 020**	+ 90	+ 200	+ 180	+ 500	+ 160	+ 310	- 300	+ 410
DC ESS SHED BUS with Ice Accretion	FULL	10	**2 410**	+ 70	+ 150	+ 130	+ 370	+ 120	+ 170	- 130	+ 360
	3	16	**2 790**	+ 80	+ 160	+ 150	+ 420	+ 140	+ 230	- 170	+ 440

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ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

DC EMER CONFIG (Calculated with 140kt min)	FULL	0 / 140kt	**3 020**	+ 70	+ 250	+ 190	+ 540	+ 170	+ 390	INOP	+ 380
	3	6 / 140kt	**3 320**	+ 100	+ 300	+ 220	+ 620	+ 200	+ 510	INOP	+ 480
ELEC EMER CONFIG (Calculated with 140kt min)	3	10 / 140kt	**3 300**	+ 100	+ 260	+ 190	+ 540	+ 200	+ 420	INOP	+ 500

(1) Automatic Landing correction: add 220m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 2 080m

1 - POOR

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
AC BUS 1 FAULT	FULL	0	**3 690**	+ 70	+ 150	+ 140	+ 580	+ 170	+ 1 010	- 360	+ 420
	3	6	**4 260**	+ 80	+ 180	+ 170	+ 620	+ 200	+ 1 250	- 480	+ 500
DC BUS 2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT with no Ice Accretion	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT with Ice Accretion	FULL	10	Landing Distance greater than 6 000 m for all conditions								
	3	16	Landing Distance greater than 6 000 m for all conditions								
DC ESS SHED BUS with Ice Accretion	FULL	10	**3 770**	+ 70	+ 140	+ 150	+ 570	+ 170	+ 930	- 450	+ 360
	3	16	**4 360**	+ 80	+ 160	+ 170	+ 610	+ 200	+ 1 150	- 580	+ 440
DC EMER CONFIG (Calculated with 140kt min)	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG (Calculated with 140kt min)	3	10 / 140kt	Landing Distance greater than 6 000 m for all conditions								

(1) Automatic Landing correction: add 220m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 3 450m

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

6 - DRY												
Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
ONE SPLR FAULT with no SPOILER runaway suspected	FULL	0	**1 170**	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20	+ 780
	3	6	**1 240**	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20	+ 930
ONE SPLR FAULT with SPOILER runaway suspected	3	10	**1 300**	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 20	+ 870
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 210**	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 20	+ 820
	3	6	**1 280**	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20	+ 970
THREE SPLR FAULT	FULL	0	**1 260**	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 20	+ 830
	3	6	**1 330**	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 30	+ 980
ALL SPLR FAULT	FULL	0	**1 380**	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 40	+ 870
	3	6	**1 440**	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 40	+ 1 030
GND SPLR FAULT	FULL	0	**1 380**	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 40	+ 870
	3	6	**1 440**	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 40	+ 1 030
SEC 1 or SEC 3 FAULT	FULL	0	**1 170**	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 20	+ 800
	3	6	**1 250**	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20	+ 950
SEC 2 FAULT	FULL	0	**1 140**	+ 40	+ 70	+ 40	+ 130	+ 40	+ 20	- 10	+ 780
	3	6	**1 230**	+ 50	+ 80	+ 40	+ 120	+ 50	+ 30	- 20	+ 930
SEC 2+3 FAULT	FULL	0	**1 250**	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 20	+ 820
	3	6	**1 320**	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 20	+ 970
SEC 1+3 FAULT	FULL	0	**1 310**	+ 40	+ 110	+ 40	+ 120	+ 50	+ 40	- 30	+ 830
	3	6	**1 380**	+ 40	+ 100	+ 50	+ 130	+ 50	+ 30	- 30	+ 990
SEC 1+2 FAULT	FULL	0	**1 200**	+ 40	+ 80	+ 40	+ 120	+ 40	+ 30	- 20	+ 820
	3	6	**1 280**	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20	+ 970
RUDDER JAM	FULL	0	**1 270**	+ 60	+ 110	+ 60	+ 150	+ 50	+ 40	- 20	+ 670
	3	6	**1 420**	+ 60	+ 110	+ 70	+ 160	+ 60	+ 40	- 20	+ 810
SEC 1+2+3 FAULT	3	10	**1 510**	+ 40	+ 120	+ 50	+ 140	+ 60	+ 50	INOP	+ 960
ALTN LAW/ DIRECT LAW/ ELAC 1+2 FAULT/ L+R ELEV FAULT/ L(R) ELEV FAULT/ STAB JAM	3	10	**1 280**	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20	+ 850
(1) Automatic Landing correction: add 180m - (2) Weight correction: subtract 10m per 1T below 66T											
REF DIST without failure (valid for all FLAPS LEVER positions) = 1 090m											

5 - GOOD							
Corrections on Landing Distance (m)	WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
ONE SPLR FAULT with no SPOILER runaway suspected	FULL	0	**1 560**	+ 50	+ 130	+ 80	+ 230	+ 80	+ 60	- 40	+ 570
	3	6	**1 720**	+ 60	+ 140	+ 90	+ 250	+ 90	+ 80	- 60	+ 680
ONE SPLR FAULT with SPOILER runaway suspected	3	10	**1 810**	+ 60	+ 140	+ 90	+ 260	+ 90	+ 80	- 60	+ 630
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 670**	+ 60	+ 150	+ 90	+ 250	+ 80	+ 80	- 60	+ 600
	3	6	**1 840**	+ 60	+ 160	+ 100	+ 280	+ 90	+ 100	- 70	+ 720
THREE SPLR FAULT	FULL	0	**1 770**	+ 60	+ 180	+ 100	+ 270	+ 90	+ 100	- 70	+ 600
	3	6	**1 950**	+ 60	+ 180	+ 110	+ 300	+ 90	+ 120	- 90	+ 720
ALL SPLR FAULT	FULL	0	**2 070**	+ 70	+ 260	+ 120	+ 330	+ 110	+ 180	- 120	+ 650
	3	6	**2 240**	+ 80	+ 270	+ 130	+ 350	+ 130	+ 200	- 130	+ 770
GND SPLR FAULT	FULL	0	**2 070**	+ 70	+ 260	+ 120	+ 330	+ 110	+ 180	- 120	+ 650
	3	6	**2 240**	+ 80	+ 270	+ 130	+ 350	+ 130	+ 200	- 130	+ 770
SEC 1 or SEC 3 FAULT	FULL	0	**1 580**	+ 50	+ 130	+ 80	+ 230	+ 70	+ 70	- 50	+ 590
	3	6	**1 760**	+ 60	+ 150	+ 100	+ 260	+ 80	+ 80	- 60	+ 700
SEC 2 FAULT	FULL	0	**1 510**	+ 50	+ 120	+ 70	+ 220	+ 70	+ 60	- 40	+ 580
	3	6	**1 680**	+ 50	+ 130	+ 90	+ 240	+ 80	+ 70	- 50	+ 690
SEC 2+3 FAULT	FULL	0	**1 740**	+ 60	+ 160	+ 90	+ 260	+ 80	+ 90	- 70	+ 590
	3	6	**1 910**	+ 60	+ 180	+ 110	+ 290	+ 90	+ 110	- 80	+ 700
SEC 1+3 FAULT	FULL	0	**1 880**	+ 60	+ 200	+ 100	+ 290	+ 100	+ 130	- 100	+ 600
	3	6	**2 060**	+ 70	+ 220	+ 120	+ 310	+ 110	+ 150	- 120	+ 720
SEC 1+2 FAULT	FULL	0	**1 650**	+ 50	+ 150	+ 90	+ 250	+ 80	+ 80	- 60	+ 600
	3	6	**1 830**	+ 60	+ 170	+ 100	+ 270	+ 90	+ 100	- 80	+ 720
RUDDER JAM	FULL	0	**1 680**	+ 60	+ 140	+ 100	+ 270	+ 80	+ 80	- 60	+ 470
	3	6	**1 920**	+ 70	+ 160	+ 120	+ 300	+ 100	+ 110	- 80	+ 550
SEC 1+2+3 FAULT	3	10	**2 400**	+ 80	+ 270	+ 140	+ 370	+ 130	+ 220	INOP	+ 710
ALTN LAW/ DIRECT LAW/ ELAC 1+2 FAULT/ L+R ELEV FAULT/ L(R) ELEV FAULT/ STAB JAM	3	10	**1 710**	+ 50	+ 120	+ 90	+ 240	+ 70	+ 60	- 50	+ 640

(1) Automatic Landing correction: add 220m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 410m

4 - GOOD TO MEDIUM

Corrections on Landing Distance (m)	WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
ONE SPLR FAULT with no SPOILER runaway suspected	FULL	0	**1 820**	+ 40	+ 110	+ 70	+ 200	+ 70	+ 90	- 90	+ 660
	3	6	**1 980**	+ 40	+ 110	+ 70	+ 210	+ 70	+ 100	- 100	+ 800
ONE SPLR FAULT with SPOILER runaway suspected	3	10	**2 060**	+ 40	+ 110	+ 80	+ 220	+ 70	+ 100	- 110	+ 740
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 950**	+ 40	+ 120	+ 70	+ 210	+ 70	+ 110	- 110	+ 690
	3	6	**2 100**	+ 40	+ 130	+ 80	+ 220	+ 80	+ 120	- 120	+ 830
THREE SPLR FAULT	FULL	0	**2 060**	+ 40	+ 140	+ 80	+ 220	+ 70	+ 130	- 120	+ 690
	3	6	**2 220**	+ 40	+ 150	+ 80	+ 230	+ 80	+ 140	- 140	+ 830
ALL SPLR FAULT	FULL	0	**2 380**	+ 50	+ 210	+ 90	+ 250	+ 90	+ 210	- 190	+ 740
	3	6	**2 530**	+ 50	+ 210	+ 100	+ 260	+ 100	+ 210	- 200	+ 880
GND SPLR FAULT	FULL	0	**2 380**	+ 50	+ 210	+ 90	+ 250	+ 90	+ 210	- 190	+ 740
	3	6	**2 530**	+ 50	+ 210	+ 100	+ 260	+ 100	+ 210	- 200	+ 880
SEC 1 or SEC 3 FAULT	FULL	0	**1 840**	+ 40	+ 110	+ 70	+ 200	+ 70	+ 90	- 90	+ 680
	3	6	**2 020**	+ 40	+ 120	+ 80	+ 210	+ 70	+ 110	- 110	+ 810
SEC 2 FAULT	FULL	0	**1 760**	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 80	+ 670
	3	6	**1 930**	+ 40	+ 110	+ 70	+ 210	+ 70	+ 90	- 90	+ 800
SEC 2+3 FAULT	FULL	0	**2 020**	+ 40	+ 140	+ 80	+ 220	+ 70	+ 120	- 120	+ 670
	3	6	**2 180**	+ 40	+ 140	+ 80	+ 230	+ 80	+ 130	- 130	+ 820
SEC 1+3 FAULT	FULL	0	**2 180**	+ 40	+ 160	+ 80	+ 230	+ 80	+ 160	- 150	+ 690
	3	6	**2 340**	+ 50	+ 170	+ 90	+ 240	+ 90	+ 170	- 170	+ 840
SEC 1+2 FAULT	FULL	0	**1 920**	+ 40	+ 120	+ 70	+ 210	+ 70	+ 110	- 100	+ 690
	3	6	**2 100**	+ 40	+ 130	+ 80	+ 220	+ 70	+ 120	- 120	+ 830
RUDDER JAM	FULL	0	**1 930**	+ 50	+ 130	+ 90	+ 240	+ 80	+ 110	- 100	+ 550
	3	6	**2 180**	+ 50	+ 140	+ 100	+ 260	+ 90	+ 140	- 130	+ 650
SEC 1+2+3 FAULT	3	10	**2 660**	+ 50	+ 210	+ 100	+ 260	+ 110	+ 230	INOP	+ 820
ALTN LAW/ DIRECT LAW/ ELAC 1+2 FAULT/ L+R ELEV FAULT/ L(R) ELEV FAULT/ STAB JAM	3	10	**1 940**	+ 40	+ 100	+ 70	+ 200	+ 70	+ 90	- 90	+ 740

(1) Automatic Landing correction: add 220m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 660m

3 - MEDIUM							
Corrections on Landing Distance (m)	**WGT(2)**	**SPD**	**ALT**	**WIND**	**TEMP**	**SLOPE**	**REV**	**OVW**

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FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
ONE SPLR FAULT with no SPOILER runaway suspected	FULL	0	**2 040**	+ 40	+ 120	+ 80	+ 230	+ 80	+ 130	- 120	+ 620
	3	6	**2 240**	+ 40	+ 120	+ 90	+ 250	+ 80	+ 150	- 140	+ 750
ONE SPLR FAULT with SPOILER runaway suspected	3	10	**2 320**	+ 50	+ 130	+ 90	+ 250	+ 90	+ 150	- 150	+ 700
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 200**	+ 50	+ 140	+ 80	+ 250	+ 80	+ 160	- 140	+ 650
	3	6	**2 390**	+ 50	+ 150	+ 90	+ 260	+ 90	+ 180	- 170	+ 780
THREE SPLR FAULT	FULL	0	**2 330**	+ 50	+ 160	+ 90	+ 260	+ 90	+ 190	- 170	+ 650
	3	6	**2 530**	+ 50	+ 170	+ 100	+ 270	+ 100	+ 210	- 190	+ 780
ALL SPLR FAULT	FULL	0	**2 730**	+ 50	+ 230	+ 110	+ 300	+ 110	+ 300	- 260	+ 700
	3	6	**2 920**	+ 60	+ 230	+ 120	+ 300	+ 120	+ 310	- 280	+ 840
GND SPLR FAULT	FULL	0	**2 730**	+ 50	+ 230	+ 110	+ 300	+ 110	+ 300	- 260	+ 700
	3	6	**2 920**	+ 60	+ 230	+ 120	+ 300	+ 120	+ 310	- 280	+ 840
SEC 1 or SEC 3 FAULT	FULL	0	**2 080**	+ 40	+ 120	+ 80	+ 240	+ 70	+ 130	- 120	+ 640
	3	6	**2 290**	+ 50	+ 130	+ 90	+ 250	+ 80	+ 150	- 150	+ 770
SEC 2 FAULT	FULL	0	**1 970**	+ 40	+ 110	+ 70	+ 230	+ 70	+ 120	- 110	+ 630
	3	6	**2 180**	+ 40	+ 120	+ 80	+ 240	+ 80	+ 140	- 130	+ 750
SEC 2+3 FAULT	FULL	0	**2 280**	+ 50	+ 150	+ 90	+ 260	+ 90	+ 180	- 160	+ 640
	3	6	**2 480**	+ 50	+ 160	+ 90	+ 270	+ 100	+ 190	- 180	+ 770
SEC 1+3 FAULT	FULL	0	**2 480**	+ 50	+ 180	+ 100	+ 280	+ 100	+ 220	- 200	+ 650
	3	6	**2 680**	+ 50	+ 190	+ 100	+ 280	+ 110	+ 240	- 230	+ 790
SEC 1+2 FAULT	FULL	0	**2 170**	+ 50	+ 130	+ 80	+ 250	+ 80	+ 150	- 130	+ 650
	3	6	**2 390**	+ 50	+ 140	+ 90	+ 260	+ 90	+ 180	- 160	+ 780
RUDDER JAM	FULL	0	**2 160**	+ 50	+ 130	+ 100	+ 280	+ 90	+ 150	- 130	+ 510
	3	6	**2 450**	+ 60	+ 150	+ 120	+ 300	+ 100	+ 190	- 170	+ 600
SEC 1+2+3 FAULT	3	10	**3 070**	+ 60	+ 240	+ 120	+ 310	+ 130	+ 330	INOP	+ 780
ALTN LAW/ DIRECT LAW/ ELAC 1+2 FAULT/ L+R ELEV FAULT/ L(R) ELEV FAULT/ STAB JAM	3	10	**2 190**	+ 40	+ 110	+ 80	+ 240	+ 80	+ 130	- 120	+ 700

(1) Automatic Landing correction: add 220m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 860m

2 - MEDIUM TO POOR

Corrections on Landing Distance (m)	WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
ONE SPLR FAULT with no SPOILER runaway suspected	FULL	0	**2 330**	+ 80	+ 180	+ 130	+ 390	+ 120	+ 200	- 140	+ 420
	3	6	**2 680**	+ 90	+ 210	+ 160	+ 450	+ 150	+ 260	- 170	+ 500
ONE SPLR FAULT with SPOILER runaway suspected	3	10	**2 810**	+ 90	+ 200	+ 160	+ 450	+ 160	+ 270	- 180	+ 470
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 580**	+ 90	+ 220	+ 150	+ 450	+ 140	+ 270	- 170	+ 440
	3	6	**2 960**	+ 100	+ 250	+ 180	+ 510	+ 180	+ 360	- 210	+ 530
THREE SPLR FAULT	FULL	0	**2 750**	+ 90	+ 250	+ 170	+ 490	+ 160	+ 330	- 200	+ 450
	3	6	**3 170**	+ 110	+ 280	+ 200	+ 560	+ 190	+ 440	- 250	+ 530
ALL SPLR FAULT	FULL	0	**3 390**	+ 120	+ 370	+ 220	+ 640	+ 220	+ 660	- 320	+ 500
	3	6	**3 870**	+ 130	+ 410	+ 260	+ 710	+ 270	+ 860	- 380	+ 590
GND SPLR FAULT	FULL	0	**3 390**	+ 120	+ 370	+ 220	+ 640	+ 220	+ 660	- 320	+ 500
	3	6	**3 870**	+ 130	+ 410	+ 260	+ 710	+ 270	+ 860	- 380	+ 590
SEC 1 or SEC 3 FAULT	FULL	0	**2 400**	+ 80	+ 190	+ 140	+ 420	+ 130	+ 220	- 140	+ 440
	3	6	**2 780**	+ 90	+ 220	+ 160	+ 470	+ 160	+ 290	- 180	+ 510
SEC 2 FAULT	FULL	0	**2 250**	+ 70	+ 170	+ 120	+ 380	+ 120	+ 180	- 120	+ 430
	3	6	**2 600**	+ 80	+ 200	+ 150	+ 430	+ 150	+ 240	- 160	+ 500
SEC 2+3 FAULT	FULL	0	**2 670**	+ 90	+ 240	+ 160	+ 470	+ 160	+ 300	- 190	+ 440
	3	6	**3 070**	+ 100	+ 270	+ 190	+ 530	+ 190	+ 400	- 230	+ 520
SEC 1+3 FAULT	FULL	0	**2 960**	+ 100	+ 280	+ 180	+ 530	+ 180	+ 420	- 240	+ 450
	3	6	**3 410**	+ 110	+ 320	+ 220	+ 610	+ 210	+ 560	- 310	+ 530
SEC 1+2 FAULT	FULL	0	**2 540**	+ 90	+ 210	+ 150	+ 450	+ 140	+ 260	- 160	+ 450
	3	6	**2 940**	+ 100	+ 250	+ 180	+ 510	+ 180	+ 350	- 210	+ 520
RUDDER JAM	FULL	0	**2 390**	+ 90	+ 180	+ 150	+ 420	+ 130	+ 220	- 150	+ 350
	3	6	**2 830**	+ 100	+ 210	+ 180	+ 500	+ 170	+ 320	- 200	+ 390
SEC 1+2+3 FAULT	3	10	**4 110**	+ 130	+ 400	+ 270	+ 720	+ 280	+ 910	INOP	+ 550
ALTN LAW/ DIRECT LAW/ ELAC 1+2 FAULT/ L+R ELEV FAULT/ L(R) ELEV FAULT/ STAB JAM	3	10	**2 620**	+ 80	+ 180	+ 150	+ 420	+ 140	+ 220	- 150	+ 470

(1) Automatic Landing correction: add 270m - (2) Weight correction: subtract 30m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 2 080m

1 - POOR							
Corrections on Landing Distance (m)	**WGT(2)**	**SPD**	**ALT**	**WIND**	**TEMP**	**SLOPE**	**REV**	**OVW**

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
ONE SPLR FAULT with no SPOILER runaway suspected	FULL	0	**3 820**	+ 70	+ 160	+ 150	+ 600	+ 170	+ 1 090	- 510	+ 420
	3	6	**4 400**	+ 80	+ 180	+ 170	+ 640	+ 200	+ 1 340	- 640	+ 500
ONE SPLR FAULT with SPOILER runaway suspected	3	10	**4 520**	+ 80	+ 180	+ 180	+ 640	+ 210	+ 1 340	- 650	+ 470
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**4 300**	+ 80	+ 190	+ 170	+ 640	+ 200	+ 1 390	- 640	+ 450
	3	6	**4 900**	+ 90	+ 220	+ 190	+ 670	+ 240	+ 1 660	- 790	+ 530
THREE SPLR FAULT	FULL	0	**4 600**	+ 80	+ 220	+ 180	+ 660	+ 220	+ 1 590	- 730	+ 450
	3	6	**5 250**	+ 90	+ 240	+ 200	+ 700	+ 250	+ 1 930	- 890	+ 530
ALL SPLR FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
GND SPLR FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
SEC 1 or SEC 3 FAULT	FULL	0	**3 970**	+ 80	+ 170	+ 150	+ 610	+ 190	+ 1 170	- 550	+ 440
	3	6	**4 580**	+ 80	+ 200	+ 180	+ 650	+ 220	+ 1 450	- 690	+ 510
SEC 2 FAULT	FULL	0	**3 690**	+ 70	+ 150	+ 140	+ 580	+ 170	+ 1 010	- 470	+ 420
	3	6	**4 260**	+ 80	+ 180	+ 170	+ 620	+ 200	+ 1 250	- 600	+ 500
SEC 2+3 FAULT	FULL	0	**4 450**	+ 80	+ 200	+ 170	+ 650	+ 210	+ 1 490	- 680	+ 440
	3	6	**5 080**	+ 90	+ 230	+ 200	+ 690	+ 240	+ 1 800	- 840	+ 520
SEC 1+3 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
SEC 1+2 FAULT	FULL	0	**4 230**	+ 80	+ 190	+ 170	+ 630	+ 200	+ 1 330	- 510	+ 450
	3	6	**4 870**	+ 90	+ 220	+ 190	+ 670	+ 240	+ 1 640	- 670	+ 530
RUDDER JAM	FULL	0	**3 760**	+ 90	+ 170	+ 170	+ 640	+ 190	+ 1 030	- 480	+ 350
	3	6	**4 430**	+ 100	+ 200	+ 210	+ 710	+ 230	+ 1 340	- 620	+ 390
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/ DIRECT LAW/ ELAC 1+2 FAULT/ L+R ELEV FAULT/ L(R) ELEV FAULT/ STAB JAM	3	10	**4 200**	+ 80	+ 160	+ 160	+ 610	+ 200	+ 1 150	- 560	+ 470

(1) Automatic Landing correction: add 260m - (2) Weight correction: subtract 30m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 3 450m

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

6 - DRY												
Corrections on Landing Distance (m)					WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
FLAPS FAULT	FLAPS<1	3	25	**1 570**	+ 50	N/A	+ 50	+ 130	+ 50	+ 30	- 20	+ 1 350
	1≤FLAPS<2	3	15	**1 390**	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20	+ 1 080
	2≤FLAPS<3	3	10	**1 300**	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 10	+ 1 000
	FLAPS=3	3	10	**1 280**	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20	+ 850
	FLAPS>3	FULL	5	**1 190**	+ 40	+ 80	+ 50	+ 120	+ 40	+ 20	- 10	+ 680
SLATS FAULT	SLATS<1	3	25	**1 500**	+ 50	N/A	+ 50	+ 130	+ 50	+ 30	- 20	+ 660
	1≤SLATS≤3	3	10	**1 280**	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20	+ 850
	SLATS>3	3	5	**1 220**	+ 40	+ 80	+ 50	+ 130	+ 40	+ 30	- 10	+ 930
FLAPS AND SLATS AT 0		1	50	**1 950**	+ 60	N/A	+ 60	+ 140	+ 60	+ 40	- 30	+ 1 020
FLAPS<1	SLATS<1	3	45	**1 870**	+ 60	N/A	+ 60	+ 130	+ 60	+ 40	- 30	+ 1 080
	SLATS≥1	3	25	**1 570**	+ 50	N/A	+ 50	+ 130	+ 50	+ 30	- 20	+ 1 350
1≤FLAPS<2	SLATS<1	3	30	**1 600**	+ 50	N/A	+ 50	+ 130	+ 50	+ 30	- 20	+ 910
	SLATS≥1	3	15	**1 390**	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20	+ 1 080
2≤FLAPS<3	SLATS<1	3	25	**1 520**	+ 50	N/A	+ 50	+ 130	+ 50	+ 30	- 20	+ 820
	SLATS≥1	3	10	**1 300**	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 10	+ 1 000
FLAPS=3	SLATS<1	3	25	**1 500**	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 20	+ 660
	1≤SLATS≤3	3	10	**1 290**	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20	+ 850
	SLATS>3	3	5	**1 210**	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 10	+ 930
FLAPS>3	1≤SLATS≤3	FULL	10	**1 270**	+ 40	+ 70	+ 50	+ 130	+ 40	+ 20	- 10	+ 600
	SLATS>3	FULL	5	**1 190**	+ 40	+ 80	+ 50	+ 120	+ 40	+ 20	- 10	+ 680

(1) Automatic Landing correction: add 160m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 090m

5 - GOOD												
Corrections on Landing Distance (m)					WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
FLAPS FAULT	FLAPS<1	3	25	**2 070**	+ 60	N/A	+ 110	+ 270	+ 100	+ 90	- 70	+ 1 040
	1≤FLAPS<2	3	15	**1 830**	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 60	+ 810
	2≤FLAPS<3	3	10	**1 720**	+ 50	+ 130	+ 90	+ 250	+ 80	+ 70	- 50	+ 750
	FLAPS=3	3	10	**1 720**	+ 50	+ 130	+ 90	+ 250	+ 80	+ 70	- 50	+ 630
	FLAPS>3	FULL	5	**1 560**	+ 50	+ 120	+ 80	+ 220	+ 70	+ 60	- 40	+ 510
SLATS FAULT	SLATS<1	3	25	**2 000**	+ 60	N/A	+ 100	+ 240	+ 90	+ 80	- 70	+ 480
	1≤SLATS≤3	3	10	**1 710**	+ 50	+ 120	+ 90	+ 240	+ 70	+ 60	- 50	+ 640

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SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

	SLATS>3	3	5	**1 620**	+ 50	+ 120	+ 80	+ 230	+ 70	+ 60	- 40	+ 700
FLAPS AND SLATS AT 0		1	50	**2 680**	+ 70	N/A	+ 140	+ 310	+ 130	+ 110	- 120	+ 750
FLAPS<1	SLATS<1	3	45	**2 570**	+ 70	N/A	+ 140	+ 300	+ 120	+ 110	- 110	+ 800
	SLATS≥1	3	25	**2 070**	+ 60	N/A	+ 110	+ 270	+ 100	+ 90	- 70	+ 1 040
1≤FLAPS<2	SLATS<1	3	30	**2 140**	+ 60	N/A	+ 110	+ 260	+ 100	+ 80	- 80	+ 660
	SLATS≥1	3	15	**1 830**	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 60	+ 810
2≤FLAPS<3	SLATS<1	3	25	**2 020**	+ 60	N/A	+ 100	+ 250	+ 90	+ 80	- 70	+ 600
	SLATS≥1	3	10	**1 720**	+ 50	+ 130	+ 90	+ 250	+ 80	+ 70	- 50	+ 750
FLAPS=3	SLATS<1	3	25	**2 020**	+ 60	N/A	+ 100	+ 250	+ 90	+ 80	- 70	+ 470
	1≤SLATS≤3	3	10	**1 720**	+ 50	+ 130	+ 90	+ 240	+ 80	+ 70	- 50	+ 630
	SLATS>3	3	5	**1 620**	+ 50	+ 130	+ 90	+ 240	+ 70	+ 60	- 50	+ 690
FLAPS>3	1≤SLATS≤3	FULL	10	**1 660**	+ 50	+ 110	+ 80	+ 230	+ 70	+ 60	- 50	+ 450
	SLATS>3	FULL	5	**1 560**	+ 50	+ 120	+ 80	+ 220	+ 70	+ 60	- 40	+ 510

(1) Automatic Landing correction: add 160m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 410m

4 - GOOD TO MEDIUM

Corrections on Landing Distance (m)					WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
FLAPS FAULT	FLAPS<1	3	25	**2 290**	+ 40	N/A	+ 80	+ 210	+ 80	+ 110	- 130	+ 1 230
	1≤FLAPS<2	3	15	**2 090**	+ 40	+ 100	+ 80	+ 210	+ 70	+ 100	- 120	+ 960
	2≤FLAPS<3	3	10	**1 980**	+ 40	+ 110	+ 70	+ 210	+ 70	+ 100	- 110	+ 890
	FLAPS=3	3	10	**1 980**	+ 40	+ 110	+ 70	+ 210	+ 70	+ 100	- 110	+ 740
	FLAPS>3	FULL	5	**1 820**	+ 40	+ 100	+ 70	+ 200	+ 70	+ 90	- 90	+ 590
SLATS FAULT	SLATS<1	3	25	**2 210**	+ 40	N/A	+ 80	+ 200	+ 70	+ 90	- 100	+ 570
	1≤SLATS≤3	3	10	**1 940**	+ 40	+ 100	+ 70	+ 200	+ 70	+ 90	- 90	+ 740
	SLATS>3	3	5	**1 870**	+ 40	+ 100	+ 70	+ 200	+ 60	+ 90	- 90	+ 810
FLAPS AND SLATS AT 0		1	50	**2 780**	+ 40	N/A	+ 100	+ 230	+ 100	+ 120	- 170	+ 930
FLAPS<1	SLATS<1	3	45	**2 690**	+ 40	N/A	+ 100	+ 230	+ 90	+ 120	- 160	+ 980
	SLATS≥1	3	25	**2 290**	+ 40	N/A	+ 80	+ 210	+ 80	+ 110	- 130	+ 1 230
1≤FLAPS<2	SLATS<1	3	30	**2 350**	+ 40	N/A	+ 90	+ 220	+ 80	+ 100	- 130	+ 800
	SLATS≥1	3	15	**2 090**	+ 40	+ 100	+ 80	+ 210	+ 70	+ 100	- 120	+ 960
2≤FLAPS<3	SLATS<1	3	25	**2 240**	+ 40	N/A	+ 80	+ 210	+ 80	+ 100	- 130	+ 720
	SLATS≥1	3	10	**1 980**	+ 40	+ 110	+ 70	+ 210	+ 70	+ 100	- 110	+ 890
FLAPS=3	SLATS<1	3	25	**2 250**	+ 40	N/A	+ 80	+ 210	+ 80	+ 100	- 130	+ 570
	1≤SLATS≤3	3	10	**1 990**	+ 40	+ 110	+ 70	+ 210	+ 70	+ 100	- 110	+ 740
	SLATS>3	3	5	**1 900**	+ 40	+ 100	+ 70	+ 210	+ 60	+ 100	- 100	+ 800
FLAPS>3	1≤SLATS≤3	FULL	10	**1 910**	+ 40	+ 100	+ 70	+ 200	+ 70	+ 90	- 100	+ 520

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

	SLATS>3	FULL	5	**1 820**	+ 40	+ 100	+ 70	+ 200	+ 70	+ 90	- 90	+ 590

(1) Automatic Landing correction: add 160m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 660m

3 - MEDIUM

Corrections on Landing Distance (m)					WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE		**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
FLAPS FAULT	FLAPS<1	3	25	**2 640**	+ 50	N/A	+ 100	+ 260	+ 90	+ 160	- 200	+ 1 160
	1≤FLAPS<2	3	15	**2 380**	+ 40	+ 120	+ 90	+ 250	+ 90	+ 150	- 170	+ 910
	2≤FLAPS<3	3	10	**2 260**	+ 40	+ 120	+ 90	+ 250	+ 80	+ 150	- 160	+ 830
	FLAPS=3	3	10	**2 260**	+ 40	+ 110	+ 90	+ 260	+ 80	+ 150	- 160	+ 690
	FLAPS>3	FULL	5	**2 060**	+ 40	+ 100	+ 80	+ 240	+ 70	+ 130	- 140	+ 550
SLATS FAULT	SLATS<1	3	25	**2 470**	+ 50	N/A	+ 90	+ 240	+ 90	+ 130	- 140	+ 540
	1≤SLATS≤3	3	10	**2 190**	+ 40	+ 110	+ 80	+ 240	+ 80	+ 130	- 120	+ 700
	SLATS>3	3	5	**2 100**	+ 40	+ 110	+ 80	+ 230	+ 80	+ 120	- 120	+ 760
FLAPS AND SLATS AT 0		1	50	**3 200**	+ 50	N/A	+ 120	+ 280	+ 110	+ 190	- 250	+ 880
FLAPS<1	SLATS<1	3	45	**3 100**	+ 50	N/A	+ 120	+ 280	+ 100	+ 180	- 240	+ 930
	SLATS≥1	3	25	**2 640**	+ 50	N/A	+ 100	+ 260	+ 90	+ 160	- 200	+ 1 160
1≤FLAPS<2	SLATS<1	3	30	**2 680**	+ 50	N/A	+ 100	+ 260	+ 90	+ 160	- 200	+ 750
	SLATS≥1	3	15	**2 380**	+ 40	+ 120	+ 90	+ 250	+ 90	+ 150	- 170	+ 910
2≤FLAPS<3	SLATS<1	3	25	**2 550**	+ 40	N/A	+ 100	+ 250	+ 80	+ 150	- 180	+ 680
	SLATS≥1	3	10	**2 260**	+ 40	+ 120	+ 90	+ 250	+ 80	+ 150	- 160	+ 830
FLAPS=3	SLATS<1	3	25	**2 550**	+ 40	N/A	+ 100	+ 250	+ 90	+ 150	- 190	+ 540
	1≤SLATS≤3	3	10	**2 260**	+ 40	+ 120	+ 90	+ 250	+ 80	+ 150	- 160	+ 690
	SLATS>3	3	5	**2 160**	+ 40	+ 120	+ 80	+ 250	+ 80	+ 140	- 150	+ 760
FLAPS>3	1≤SLATS≤3	FULL	10	**2 150**	+ 40	+ 110	+ 80	+ 240	+ 80	+ 130	- 140	+ 490
	SLATS>3	FULL	5	**2 060**	+ 40	+ 100	+ 80	+ 240	+ 70	+ 130	- 140	+ 550

(1) Automatic Landing correction: add 160m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 860m

2 - MEDIUM TO POOR

Corrections on Landing Distance (m)					WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE		**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
FLAPS FAULT	FLAPS<1	3	25	**3 580**	+ 100	N/A	+ 220	+ 580	+ 200	+ 410	- 320	+ 730
	1≤FLAPS<2	3	15	**2 990**	+ 90	+ 200	+ 180	+ 500	+ 160	+ 300	- 230	+ 570
	2≤FLAPS<3	3	10	**2 760**	+ 90	+ 200	+ 170	+ 480	+ 150	+ 270	- 200	+ 520

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

	FLAPS=3	3	10	**2 720**	+ 80	+ 190	+ 160	+ 470	+ 140	+ 260	- 200	+ 440
	FLAPS>3	FULL	5	**2 370**	+ 70	+ 160	+ 130	+ 410	+ 120	+ 190	- 150	+ 370
SLATS FAULT	SLATS<1	3	25	**3 030**	+ 90	N/A	+ 160	+ 420	+ 150	+ 240	- 200	+ 390
	1≤SLATS≤3	3	10	**2 620**	+ 80	+ 180	+ 150	+ 420	+ 140	+ 220	- 150	+ 470
	SLATS>3	3	5	**2 490**	+ 80	+ 180	+ 140	+ 420	+ 130	+ 210	- 140	+ 500
FLAPS AND SLATS AT 0		1	50	**4 540**	+ 110	N/A	+ 260	+ 620	+ 230	+ 500	- 470	+ 580
FLAPS<1	SLATS<1	3	45	**4 370**	+ 110	N/A	+ 250	+ 620	+ 230	+ 490	- 440	+ 600
	SLATS≥1	3	25	**3 580**	+ 100	N/A	+ 220	+ 580	+ 200	+ 410	- 320	+ 730
1≤FLAPS<2	SLATS<1	3	30	**3 440**	+ 90	N/A	+ 190	+ 510	+ 180	+ 330	- 290	+ 490
	SLATS≥1	3	15	**2 990**	+ 90	+ 200	+ 180	+ 500	+ 160	+ 300	- 230	+ 570
2≤FLAPS<3	SLATS<1	3	25	**3 200**	+ 90	N/A	+ 180	+ 490	+ 160	+ 290	- 260	+ 450
	SLATS≥1	3	10	**2 760**	+ 90	+ 200	+ 170	+ 480	+ 150	+ 270	- 200	+ 520
FLAPS=3	SLATS<1	3	25	**3 160**	+ 90	N/A	+ 180	+ 480	+ 150	+ 280	- 250	+ 370
	1≤SLATS≤3	3	10	**2 730**	+ 80	+ 190	+ 160	+ 470	+ 140	+ 260	- 200	+ 440
	SLATS>3	3	5	**2 570**	+ 80	+ 200	+ 160	+ 470	+ 130	+ 250	- 180	+ 470
FLAPS>3	1≤SLATS≤3	FULL	10	**2 500**	+ 70	+ 160	+ 140	+ 410	+ 120	+ 200	- 170	+ 340
	SLATS>3	FULL	5	**2 370**	+ 70	+ 160	+ 130	+ 410	+ 120	+ 190	- 150	+ 370

(1) Automatic Landing correction: add 180m - (2) Weight correction: subtract 30m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 2 080m

1 - POOR

Corrections on Landing Distance (m)					WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE		**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
FLAPS FAULT	FLAPS<1	3	25	Landing Distance greater than 6 000 m for all conditions								
	1≤FLAPS<2	3	15	Landing Distance greater than 6 000 m for all conditions								
	2≤FLAPS<3	3	10	Landing Distance greater than 6 000 m for all conditions								
	FLAPS=3	3	10	Landing Distance greater than 6 000 m for all conditions								
	FLAPS>3	FULL	5	Landing Distance greater than 6 000 m for all conditions								
SLATS FAULT	SLATS<1	3	25	**4 600**	+ 80	N/A	+ 180	+ 610	+ 210	+ 1 150	- 600	+ 390
	1≤SLATS≤3	3	10	**4 200**	+ 80	+ 160	+ 160	+ 610	+ 200	+ 1 150	- 560	+ 470
	SLATS>3	3	5	**4 070**	+ 80	+ 170	+ 160	+ 610	+ 190	+ 1 150	- 550	+ 500
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	25	Landing Distance greater than 6 000 m for all conditions								
1≤FLAPS<2	SLATS<1	3	30	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	15	Landing Distance greater than 6 000 m for all conditions								
2≤FLAPS<3	SLATS<1	3	25	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	10	Landing Distance greater than 6 000 m for all conditions								

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SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

FLAPS=3	SLATS<1	3	25	Landing Distance greater than 6 000 m for all conditions
	1≤SLATS≤3	3	10	Landing Distance greater than 6 000 m for all conditions
	SLATS>3	3	5	Landing Distance greater than 6 000 m for all conditions
FLAPS>3	1≤SLATS≤3	FULL	10	Landing Distance greater than 6 000 m for all conditions
	SLATS>3	FULL	5	Landing Distance greater than 6 000 m for all conditions

(1) Automatic Landing correction: add 160m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 3 450m

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HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

6 - DRY											
Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
G SYS LO PR	FULL	0	**1 270**	+ 40	+ 80	+ 40	+ 120	+ 30	+ 30	- 30	+ 790
	3	6	**1 340**	+ 40	+ 80	+ 50	+ 120	+ 40	+ 30	- 30	+ 950
B SYS LO PR	FULL	0	**1 140**	+ 40	+ 70	+ 40	+ 130	+ 40	+ 20	- 10	+ 780
	3	6	**1 230**	+ 50	+ 80	+ 40	+ 120	+ 50	+ 30	- 20	+ 930
Y SYS LO PR	FULL	0	**1 180**	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 20	+ 810
	3	6	**1 260**	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 20	+ 960
G SYS LO PR with B SYS supplied by the RAT (Calculated with 140kt min)	FULL	0 / 140kt	**1 370**	+ 30	+ 90	+ 50	+ 130	+ 40	+ 40	- 30	+ 730
	3	6 / 140kt	**1 390**	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 40	+ 960
Y SYS LO PR with B SYS supplied by the RAT (Calculated with 140kt min)	FULL	0 / 140kt	**1 290**	+ 30	+ 90	+ 40	+ 130	+ 40	+ 30	- 30	+ 750
	3	6 / 140kt	**1 310**	+ 40	+ 90	+ 50	+ 130	+ 50	+ 30	- 30	+ 980
G + B	3	25	**1 670**	+ 40	N/A	+ 60	+ 130	+ 50	+ 40	- 40	+ 680
G + Y	3	25	**2 630**	+ 80	N/A	+ 90	+ 210	+ 90	+ 130	INOP	+ 590
B + Y	FULL	0	**1 230**	+ 40	+ 80	+ 40	+ 120	+ 30	+ 30	- 20	+ 820
	3	6	**1 310**	+ 40	+ 80	+ 50	+ 130	+ 40	+ 30	- 20	+ 980

(1) Automatic Landing correction: add 170m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 090m

5 - GOOD											
Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
G SYS LO PR	FULL	0	**1 730**	+ 60	+ 140	+ 90	+ 260	+ 80	+ 90	- 70	+ 550
	3	6	**1 910**	+ 60	+ 160	+ 100	+ 280	+ 100	+ 110	- 90	+ 660
B SYS LO PR	FULL	0	**1 510**	+ 50	+ 120	+ 70	+ 220	+ 70	+ 60	- 40	+ 580
	3	6	**1 680**	+ 50	+ 130	+ 90	+ 240	+ 80	+ 70	- 50	+ 690
Y SYS LO PR	FULL	0	**1 600**	+ 50	+ 130	+ 80	+ 240	+ 70	+ 70	- 50	+ 600
	3	6	**1 780**	+ 60	+ 150	+ 100	+ 260	+ 80	+ 90	- 70	+ 700
G SYS LO PR with B SYS supplied by the RAT (Calculated with 140kt min)	FULL	0 / 140kt	**1 920**	+ 40	+ 160	+ 100	+ 280	+ 90	+ 110	- 140	+ 500
	3	6 / 140kt	**2 010**	+ 60	+ 180	+ 110	+ 300	+ 100	+ 120	- 150	+ 670

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HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

Y SYS LO PR with B SYS supplied by the RAT (Calculated with 140kt min)	FULL	0 / 140kt	**1 800**	+ 40	+ 160	+ 100	+ 260	+ 90	+ 90	- 120	+ 550
	3	6 / 140kt	**1 900**	+ 60	+ 170	+ 110	+ 280	+ 90	+ 110	- 130	+ 720
G + B	3	25	**2 520**	+ 70	N/A	+ 130	+ 310	+ 120	+ 150	- 150	+ 470
G + Y	3	25	**2 870**	+ 90	N/A	+ 140	+ 320	+ 130	+ 200	INOP	+ 480
B + Y	FULL	0	**1 700**	+ 60	+ 160	+ 90	+ 260	+ 80	+ 90	- 60	+ 610
	3	6	**1 890**	+ 60	+ 170	+ 110	+ 280	+ 90	+ 110	- 80	+ 720

(1) Automatic Landing correction: add 190m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 410m

4 - GOOD TO MEDIUM

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
G SYS LO PR	FULL	0	**1 880**	+ 40	+ 120	+ 70	+ 200	+ 70	+ 100	- 90	+ 660
	3	6	**2 050**	+ 40	+ 120	+ 80	+ 220	+ 70	+ 110	- 110	+ 800
B SYS LO PR	FULL	0	**1 760**	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 80	+ 670
	3	6	**1 930**	+ 40	+ 110	+ 70	+ 210	+ 70	+ 90	- 90	+ 800
Y SYS LO PR	FULL	0	**1 860**	+ 40	+ 110	+ 70	+ 210	+ 70	+ 100	- 80	+ 680
	3	6	**2 040**	+ 40	+ 120	+ 80	+ 220	+ 70	+ 110	- 100	+ 820
G SYS LO PR with B SYS supplied by the RAT (Calculated with 140kt min)	FULL	0 / 140kt	**2 070**	+ 30	+ 120	+ 80	+ 220	+ 70	+ 120	- 130	+ 610
	3	6 / 140kt	**2 140**	+ 40	+ 140	+ 80	+ 220	+ 80	+ 130	- 140	+ 810
Y SYS LO PR with B SYS supplied by the RAT (Calculated with 140kt min)	FULL	0 / 140kt	**2 070**	+ 30	+ 130	+ 80	+ 220	+ 80	+ 120	- 140	+ 630
	3	6 / 140kt	**2 170**	+ 40	+ 140	+ 80	+ 230	+ 80	+ 130	- 150	+ 830
G + B	3	25	**2 560**	+ 50	N/A	+ 90	+ 230	+ 90	+ 140	- 140	+ 570
G + Y	3	25	**2 920**	+ 60	N/A	+ 110	+ 240	+ 100	+ 180	INOP	+ 560
B + Y	FULL	0	**1 980**	+ 40	+ 130	+ 70	+ 220	+ 70	+ 120	- 100	+ 690
	3	6	**2 160**	+ 40	+ 140	+ 80	+ 220	+ 80	+ 130	- 120	+ 830

(1) Automatic Landing correction: add 190m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 660m

3 - MEDIUM

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
G SYS LO PR	FULL	0	**2 120**	+ 40	+ 130	+ 80	+ 240	+ 80	+ 140	- 120	+ 620

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HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

	3	6	**2 320**	+ 50	+ 130	+ 90	+ 250	+ 80	+ 160	- 150	+ 750
B SYS LO PR	FULL	0	**1 970**	+ 40	+ 110	+ 70	+ 230	+ 70	+ 120	- 110	+ 630
	3	6	**2 180**	+ 40	+ 120	+ 80	+ 240	+ 80	+ 140	- 130	+ 750
Y SYS LO PR	FULL	0	**2 100**	+ 40	+ 120	+ 80	+ 240	+ 80	+ 140	- 100	+ 640
	3	6	**2 310**	+ 50	+ 140	+ 90	+ 250	+ 90	+ 160	- 130	+ 770
G SYS LO PR with B SYS supplied by the RAT (Calculated with 140kt min)	FULL	0 / 140kt	**2 330**	+ 30	+ 140	+ 90	+ 260	+ 80	+ 170	- 170	+ 570
	3	6 / 140kt	**2 430**	+ 50	+ 150	+ 90	+ 260	+ 90	+ 180	- 190	+ 760
Y SYS LO PR with B SYS supplied by the RAT (Calculated with 140kt min)	FULL	0 / 140kt	**2 340**	+ 30	+ 140	+ 90	+ 260	+ 90	+ 170	- 170	+ 590
	3	6 / 140kt	**2 470**	+ 50	+ 150	+ 100	+ 270	+ 90	+ 190	- 200	+ 780
G + B	3	25	**2 900**	+ 50	N/A	+ 110	+ 270	+ 100	+ 200	- 190	+ 540
G + Y	3	25	**3 260**	+ 60	N/A	+ 120	+ 290	+ 120	+ 250	INOP	+ 530
B + Y	FULL	0	**2 240**	+ 50	+ 140	+ 90	+ 260	+ 80	+ 170	- 120	+ 650
	3	6	**2 460**	+ 50	+ 160	+ 100	+ 260	+ 90	+ 190	- 150	+ 780

(1) Automatic Landing correction: add 190m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 860m

2 - MEDIUM TO POOR

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
G SYS LO PR	FULL	0	**2 430**	+ 80	+ 200	+ 140	+ 410	+ 130	+ 230	- 150	+ 420
	3	6	**2 810**	+ 90	+ 220	+ 160	+ 480	+ 160	+ 300	- 190	+ 500
B SYS LO PR	FULL	0	**2 250**	+ 70	+ 170	+ 120	+ 380	+ 120	+ 180	- 120	+ 430
	3	6	**2 600**	+ 80	+ 200	+ 150	+ 430	+ 150	+ 240	- 160	+ 500
Y SYS LO PR	FULL	0	**2 430**	+ 80	+ 200	+ 140	+ 420	+ 130	+ 230	- 120	+ 440
	3	6	**2 820**	+ 90	+ 230	+ 170	+ 480	+ 160	+ 310	- 170	+ 510
G SYS LO PR with B SYS supplied by the RAT (Calculated with 140kt min)	FULL	0 / 140kt	**2 730**	+ 70	+ 210	+ 160	+ 450	+ 150	+ 290	- 250	+ 400
	3	6 / 140kt	**2 980**	+ 100	+ 250	+ 180	+ 510	+ 180	+ 360	- 310	+ 510
Y SYS LO PR with B SYS supplied by the RAT (Calculated with 140kt min)	FULL	0 / 140kt	**2 780**	+ 70	+ 220	+ 160	+ 470	+ 160	+ 300	- 260	+ 420
	3	6 / 140kt	**3 070**	+ 100	+ 260	+ 190	+ 540	+ 180	+ 390	- 340	+ 530
G + B	3	25	**3 660**	+ 100	N/A	+ 200	+ 520	+ 200	+ 410	- 300	+ 390
G + Y	3	25	**4 010**	+ 110	N/A	+ 220	+ 560	+ 220	+ 520	INOP	+ 400
B + Y	FULL	0	**2 630**	+ 90	+ 230	+ 160	+ 460	+ 150	+ 290	- 160	+ 450
	3	6	**3 060**	+ 100	+ 260	+ 190	+ 530	+ 180	+ 390	- 210	+ 530

(1) Automatic Landing correction: add 220m - (2) Weight correction: subtract 10m per 1T below 66T

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HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

REF DIST without failure (valid for all FLAPS LEVER positions) = 2 080m

1 - POOR

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
G SYS LO PR	FULL	0	**4 000**	+ 80	+ 180	+ 150	+ 610	+ 190	+ 1 190	- 440	+ 420
	3	6	**4 600**	+ 80	+ 210	+ 180	+ 650	+ 220	+ 1 460	- 590	+ 500
B SYS LO PR	FULL	0	**3 690**	+ 70	+ 150	+ 140	+ 580	+ 170	+ 1 010	- 470	+ 420
	3	6	**4 260**	+ 80	+ 180	+ 170	+ 620	+ 200	+ 1 250	- 600	+ 500
Y SYS LO PR	FULL	0	**4 030**	+ 80	+ 180	+ 160	+ 610	+ 190	+ 1 210	0	+ 440
	3	6	Landing Distance greater than 6 000 m for all conditions								
G SYS LO PR with B SYS supplied by the RAT (Calculated with 140kt min)	FULL	0 / 140kt	**4 420**	+ 60	+ 190	+ 170	+ 640	+ 210	+ 1 380	- 50	+ 400
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
Y SYS LO PR with B SYS supplied by the RAT (Calculated with 140kt min)	FULL	0 / 140kt	**4 550**	+ 60	+ 200	+ 180	+ 650	+ 220	+ 1 460	- 80	+ 420
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
G + B	3	25	Landing Distance greater than 6 000 m for all conditions								
G + Y	3	25	Landing Distance greater than 6 000 m for all conditions								
B + Y	FULL	0	**4 400**	+ 80	+ 210	+ 170	+ 640	+ 210	+ 1 450	- 10	+ 450
	3	6	Landing Distance greater than 6 000 m for all conditions								

(1) Automatic Landing correction: add 210m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 3 450m

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

6 - DRY

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
WING ANTI ICE SYS FAULT with Ice Accretion	FULL	10	**1 260**	+ 40	+ 70	+ 50	+ 130	+ 40	+ 20	- 10	+ 600
	3	16	**1 370**	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20	+ 770

(1) Automatic Landing correction: add 140m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 090m

5 - GOOD

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
WING ANTI ICE SYS FAULT with Ice Accretion	FULL	10	**1 640**	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 40	+ 450
	3	16	**1 820**	+ 50	+ 120	+ 90	+ 240	+ 80	+ 70	- 60	+ 570

(1) Automatic Landing correction: add 140m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 410m

4 - GOOD TO MEDIUM

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
WING ANTI ICE SYS FAULT with Ice Accretion	FULL	10	**1 870**	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 80	+ 530
	3	16	**2 050**	+ 40	+ 90	+ 80	+ 200	+ 70	+ 90	- 90	+ 670

(1) Automatic Landing correction: add 140m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 660m

3 - MEDIUM

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
WING ANTI ICE SYS FAULT with Ice Accretion	FULL	10	**2 080**	+ 40	+ 100	+ 80	+ 230	+ 80	+ 110	- 110	+ 500
	3	16	**2 300**	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 130	+ 630

(1) Automatic Landing correction: add 140m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 860m

2 - MEDIUM TO POOR

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
WING ANTI ICE SYS FAULT with Ice Accretion	FULL	10	**2 410**	+ 70	+ 150	+ 130	+ 370	+ 120	+ 170	- 130	+ 360
	3	16	**2 790**	+ 80	+ 160	+ 150	+ 420	+ 140	+ 230	- 170	+ 440

(1) Automatic Landing correction: add 150m - (2) Weight correction: subtract 30m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 2 080m

1 - POOR

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
WING ANTI ICE SYS FAULT with Ice Accretion	FULL	10	**3 770**	+ 70	+ 140	+ 150	+ 570	+ 170	+ 930	- 450	+ 360
	3	16	**4 360**	+ 80	+ 160	+ 170	+ 610	+ 200	+ 1 150	- 580	+ 440

(1) Automatic Landing correction: add 150m - (2) Weight correction: subtract 30m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 3 450m

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

6 - DRY

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
ANTISKID FAULT	FULL	0	**1 870**	+ 70	+ 100	+ 60	+ 190	+ 70	+ 80	- 60	+ 660
	3	6	**2 070**	+ 70	+ 100	+ 70	+ 210	+ 70	+ 90	- 80	+ 790
ONE BRK RELEASED	FULL	0	**1 300**	+ 50	+ 90	+ 50	+ 150	+ 40	+ 30	- 20	+ 720
	3	6	**1 430**	+ 50	+ 90	+ 50	+ 150	+ 50	+ 40	- 30	+ 870
TWO BRK RELEASED	FULL	0	**1 610**	+ 60	+ 100	+ 60	+ 190	+ 60	+ 70	- 50	+ 670
	3	6	**1 790**	+ 70	+ 110	+ 70	+ 200	+ 70	+ 80	- 60	+ 810
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**1 610**	+ 60	+ 100	+ 60	+ 190	+ 60	+ 70	- 60	+ 670
	3	6	**1 790**	+ 70	+ 110	+ 70	+ 200	+ 70	+ 80	- 70	+ 810
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**1 740**	+ 60	+ 110	+ 70	+ 190	+ 60	+ 80	- 80	+ 690
	3	6	**1 890**	+ 70	+ 110	+ 70	+ 200	+ 70	+ 90	- 90	+ 840
NORM BRK FAULT	FULL	0	**1 180**	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20	+ 770
	3	6	**1 260**	+ 40	+ 70	+ 40	+ 120	+ 40	+ 30	- 20	+ 920
NORM + ALTN FAULT	FULL	0	**1 870**	+ 70	+ 100	+ 60	+ 190	+ 70	+ 80	- 60	+ 660
	3	6	**2 070**	+ 70	+ 100	+ 70	+ 210	+ 70	+ 90	- 80	+ 790

(1) Automatic Landing correction: add 180m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 090m

5 - GOOD

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
ANTISKID FAULT	FULL	0	**1 870**	+ 60	+ 110	+ 70	+ 220	+ 70	+ 90	- 70	+ 600
	3	6	**2 070**	+ 70	+ 120	+ 80	+ 240	+ 80	+ 100	- 80	+ 710
ONE BRK RELEASED	FULL	0	**1 660**	+ 50	+ 120	+ 90	+ 250	+ 70	+ 70	- 60	+ 530
	3	6	**1 860**	+ 60	+ 140	+ 100	+ 280	+ 90	+ 90	- 70	+ 620
TWO BRK RELEASED	FULL	0	**1 990**	+ 70	+ 140	+ 100	+ 310	+ 90	+ 130	- 100	+ 470
	3	6	**2 260**	+ 70	+ 160	+ 120	+ 350	+ 110	+ 160	- 130	+ 550
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 110**	+ 70	+ 140	+ 110	+ 340	+ 100	+ 150	- 110	+ 440
	3	6	**2 410**	+ 80	+ 160	+ 130	+ 380	+ 120	+ 190	- 150	+ 520
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 370**	+ 80	+ 170	+ 120	+ 380	+ 120	+ 210	- 160	+ 440
	3	6	**2 690**	+ 90	+ 200	+ 150	+ 430	+ 140	+ 270	- 210	+ 520
NORM BRK FAULT	FULL	0	**1 560**	+ 50	+ 120	+ 80	+ 230	+ 70	+ 60	- 40	+ 550
	3	6	**1 740**	+ 50	+ 130	+ 90	+ 250	+ 80	+ 80	- 60	+ 660
NORM + ALTN FAULT	FULL	0	**1 870**	+ 60	+ 110	+ 70	+ 220	+ 70	+ 90	- 70	+ 600

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

	3	6	**2 070**	+ 70	+ 120	+ 80	+ 240	+ 80	+ 100	- 80	+ 710

(1) Automatic Landing correction: add 190m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 410m

4 - GOOD TO MEDIUM

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
ANTISKID FAULT	FULL	0	**1 890**	+ 60	+ 100	+ 60	+ 200	+ 70	+ 80	- 90	+ 660
	3	6	**2 080**	+ 70	+ 110	+ 70	+ 210	+ 70	+ 100	- 100	+ 790
ONE BRK RELEASED	FULL	0	**1 970**	+ 40	+ 100	+ 70	+ 230	+ 70	+ 120	- 110	+ 610
	3	6	**2 180**	+ 40	+ 110	+ 80	+ 250	+ 80	+ 140	- 130	+ 740
TWO BRK RELEASED	FULL	0	**2 410**	+ 50	+ 120	+ 90	+ 310	+ 90	+ 220	- 180	+ 550
	3	6	**2 700**	+ 50	+ 130	+ 100	+ 330	+ 110	+ 260	- 220	+ 650
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 410**	+ 50	+ 120	+ 90	+ 310	+ 90	+ 220	- 180	+ 550
	3	6	**2 700**	+ 50	+ 130	+ 100	+ 330	+ 110	+ 260	- 220	+ 650
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 690**	+ 60	+ 140	+ 110	+ 340	+ 100	+ 290	- 210	+ 540
	3	6	**2 990**	+ 60	+ 160	+ 120	+ 360	+ 120	+ 340	- 260	+ 660
NORM BRK FAULT	FULL	0	**1 710**	+ 40	+ 100	+ 60	+ 190	+ 60	+ 80	- 70	+ 660
	3	6	**1 880**	+ 40	+ 100	+ 70	+ 200	+ 60	+ 90	- 90	+ 800
NORM + ALTN FAULT	FULL	0	**1 890**	+ 60	+ 100	+ 60	+ 200	+ 70	+ 80	- 90	+ 660
	3	6	**2 080**	+ 70	+ 110	+ 70	+ 210	+ 70	+ 100	- 100	+ 790

(1) Automatic Landing correction: add 190m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 660m

3 - MEDIUM

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
ANTISKID FAULT	FULL	0	**2 070**	+ 40	+ 100	+ 70	+ 230	+ 70	+ 120	- 110	+ 620
	3	6	**2 290**	+ 40	+ 110	+ 80	+ 240	+ 80	+ 140	- 140	+ 750
ONE BRK RELEASED	FULL	0	**2 210**	+ 50	+ 110	+ 80	+ 280	+ 80	+ 170	- 140	+ 570
	3	6	**2 460**	+ 50	+ 130	+ 100	+ 290	+ 90	+ 200	- 180	+ 690
TWO BRK RELEASED	FULL	0	**2 700**	+ 60	+ 130	+ 110	+ 370	+ 110	+ 320	- 230	+ 510
	3	6	**3 050**	+ 60	+ 150	+ 120	+ 390	+ 130	+ 390	- 290	+ 610
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 700**	+ 60	+ 130	+ 110	+ 370	+ 110	+ 320	- 230	+ 510
	3	6	**3 050**	+ 60	+ 150	+ 120	+ 390	+ 130	+ 390	- 290	+ 610

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BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**3 020**	+ 60	+ 160	+ 120	+ 400	+ 130	+ 420	- 260	+ 500
	3	6	**3 400**	+ 70	+ 170	+ 140	+ 430	+ 140	+ 500	- 330	+ 610
NORM BRK FAULT	FULL	0	**1 910**	+ 40	+ 110	+ 70	+ 220	+ 70	+ 110	- 100	+ 620
	3	6	**2 110**	+ 40	+ 120	+ 80	+ 230	+ 80	+ 130	- 120	+ 750
NORM + ALTN FAULT	FULL	0	**2 070**	+ 40	+ 100	+ 70	+ 230	+ 70	+ 120	- 110	+ 620
	3	6	**2 290**	+ 40	+ 110	+ 80	+ 240	+ 80	+ 140	- 140	+ 750

(1) Automatic Landing correction: add 190m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 860m

2 - MEDIUM TO POOR

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
ANTISKID FAULT	FULL	0	**2 230**	+ 70	+ 150	+ 120	+ 370	+ 110	+ 170	- 120	+ 430
	3	6	**2 580**	+ 80	+ 180	+ 140	+ 420	+ 130	+ 220	- 160	+ 510
ONE BRK RELEASED	FULL	0	**2 460**	+ 80	+ 160	+ 130	+ 420	+ 120	+ 230	- 160	+ 390
	3	6	**2 850**	+ 90	+ 200	+ 160	+ 480	+ 160	+ 310	- 200	+ 450
TWO BRK RELEASED	FULL	0	**2 930**	+ 90	+ 170	+ 150	+ 520	+ 150	+ 400	- 250	+ 350
	3	6	**3 430**	+ 110	+ 200	+ 180	+ 600	+ 190	+ 540	- 320	+ 390
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 930**	+ 90	+ 170	+ 150	+ 520	+ 150	+ 400	- 250	+ 350
	3	6	**3 430**	+ 110	+ 200	+ 180	+ 600	+ 190	+ 540	- 320	+ 390
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**3 310**	+ 100	+ 210	+ 170	+ 590	+ 180	+ 550	- 290	+ 350
	3	6	**3 860**	+ 120	+ 260	+ 220	+ 680	+ 230	+ 730	- 380	+ 400
NORM BRK FAULT	FULL	0	**2 170**	+ 70	+ 160	+ 120	+ 370	+ 110	+ 160	- 110	+ 420
	3	6	**2 510**	+ 80	+ 180	+ 140	+ 420	+ 130	+ 220	- 140	+ 500
NORM + ALTN FAULT	FULL	0	**2 230**	+ 70	+ 150	+ 120	+ 370	+ 110	+ 170	- 120	+ 430
	3	6	**2 580**	+ 80	+ 180	+ 140	+ 420	+ 130	+ 220	- 160	+ 510

(1) Automatic Landing correction: add 210m - (2) Weight correction: subtract 30m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 2 080m

1 - POOR

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
ANTISKID FAULT	FULL	0	**3 600**	+ 70	+ 140	+ 140	+ 570	+ 160	+ 940	- 440	+ 430
	3	6	**4 160**	+ 80	+ 170	+ 160	+ 610	+ 190	+ 1 160	- 560	+ 510
ONE BRK RELEASED	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								

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BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

TWO BRK RELEASED	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
NORM BRK FAULT	FULL	0	**3 540**	+ 70	+ 140	+ 140	+ 570	+ 160	+ 930	- 440	+ 420
	3	6	**4 090**	+ 80	+ 170	+ 160	+ 610	+ 190	+ 1 150	- 550	+ 500
NORM + ALTN FAULT	FULL	0	**3 600**	+ 70	+ 140	+ 140	+ 570	+ 160	+ 940	- 440	+ 430
	3	6	**4 160**	+ 80	+ 170	+ 160	+ 610	+ 190	+ 1 160	- 560	+ 510

(1) Automatic Landing correction: add 200m - (2) Weight correction: subtract 30m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 3 450m

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

6 - DRY

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
IR 1+2+3 FAULT	3	10	**2 230**	+ 50	+ 160	+ 80	+ 220	+ 80	+ 10	- 10	+ 590
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 280**	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20	+ 850
ALL ADR OFF	3	N/A	**1 280**	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20	+ 850

(1) Automatic Landing correction: add 150m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 090m

5 - GOOD

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
IR 1+2+3 FAULT	3	10	**2 230**	+ 50	+ 160	+ 90	+ 220	+ 80	+ 10	- 10	+ 580
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 710**	+ 50	+ 120	+ 90	+ 240	+ 70	+ 60	- 50	+ 640
ALL ADR OFF	3	N/A	**1 710**	+ 50	+ 120	+ 90	+ 240	+ 70	+ 60	- 50	+ 640

(1) Automatic Landing correction: add 150m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 410m

4 - GOOD TO MEDIUM

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
IR 1+2+3 FAULT	3	10	**2 240**	+ 50	+ 160	+ 80	+ 230	+ 80	+ 40	- 10	+ 590
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 940**	+ 40	+ 100	+ 70	+ 200	+ 70	+ 90	- 90	+ 740
ALL ADR OFF	3	N/A	**1 940**	+ 40	+ 100	+ 70	+ 200	+ 70	+ 90	- 90	+ 740

(1) Automatic Landing correction: add 150m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 660m

3 - MEDIUM

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied

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NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

IR 1+2+3 FAULT	3	10	**2 330**	+ 50	+ 160	+ 90	+ 250	+ 90	+ 90	- 40	+ 590
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**2 190**	+ 40	+ 110	+ 80	+ 240	+ 80	+ 130	- 120	+ 700
ALL ADR OFF	3	N/A	**2 190**	+ 40	+ 110	+ 80	+ 240	+ 80	+ 130	- 120	+ 700

(1) Automatic Landing correction: add 150m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 860m

2 - MEDIUM TO POOR

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
IR 1+2+3 FAULT	3	10	**2 620**	+ 80	+ 180	+ 150	+ 420	+ 140	+ 220	- 60	+ 470
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**2 620**	+ 80	+ 180	+ 150	+ 420	+ 140	+ 220	- 150	+ 470
ALL ADR OFF	3	N/A	**2 620**	+ 80	+ 180	+ 150	+ 420	+ 140	+ 220	- 150	+ 470

(1) Automatic Landing correction: add 150m - (2) Weight correction: subtract 30m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 2 080m

1 - POOR

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
IR 1+2+3 FAULT	3	10	**4 200**	+ 80	+ 160	+ 160	+ 610	+ 200	+ 1 150	- 550	+ 470
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**4 200**	+ 80	+ 160	+ 160	+ 610	+ 200	+ 1 150	- 560	+ 470
ALL ADR OFF	3	N/A	**4 200**	+ 80	+ 160	+ 160	+ 610	+ 200	+ 1 150	- 560	+ 470

(1) Automatic Landing correction: add 150m - (2) Weight correction: subtract 40m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 3 450m

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

6 - DRY

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
The following ECAM alerts with Ice Accretion: -DUAL BLEED FAULT -WING or ENG BLEED LEAK -X BLEED FAULT -ENG BLEED LO TEMP	FULL	10	**1 260**	+ 40	+ 70	+ 50	+ 130	+ 40	+ 20	- 10	+ 600
	3	16	**1 370**	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20	+ 770

(1) Automatic Landing correction: add 140m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 090m

5 - GOOD

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
The following ECAM alerts with Ice Accretion: -DUAL BLEED FAULT -WING or ENG BLEED LEAK -X BLEED FAULT -ENG BLEED LO TEMP	FULL	10	**1 640**	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 40	+ 450
	3	16	**1 820**	+ 50	+ 120	+ 90	+ 240	+ 80	+ 70	- 60	+ 570

(1) Automatic Landing correction: add 140m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 410m

4 - GOOD TO MEDIUM

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
The following ECAM alerts with Ice Accretion: -DUAL BLEED FAULT -WING or ENG BLEED LEAK -X BLEED FAULT -ENG BLEED LO TEMP	FULL	10	**1 870**	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 80	+ 530
	3	16	**2 050**	+ 40	+ 90	+ 80	+ 200	+ 70	+ 90	- 90	+ 670

(1) Automatic Landing correction: add 140m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 660m

3 - MEDIUM

Corrections on Landing Distance (m)	WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
The following ECAM alerts with Ice Accretion: -DUAL BLEED FAULT -WING or ENG BLEED LEAK -X BLEED FAULT -ENG BLEED LO TEMP	FULL	10	**2 080**	+ 40	+ 100	+ 80	+ 230	+ 80	+ 110	- 110	+ 500
	3	16	**2 300**	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 130	+ 630

(1) Automatic Landing correction: add 140m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 860m

2 - MEDIUM TO POOR

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
The following ECAM alerts with Ice Accretion: -DUAL BLEED FAULT -WING or ENG BLEED LEAK -X BLEED FAULT -ENG BLEED LO TEMP	FULL	10	**2 410**	+ 70	+ 150	+ 130	+ 370	+ 120	+ 170	- 130	+ 360
	3	16	**2 790**	+ 80	+ 160	+ 150	+ 420	+ 140	+ 230	- 170	+ 440

(1) Automatic Landing correction: add 150m - (2) Weight correction: subtract 30m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 2 080m

1 - POOR

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
The following ECAM alerts with Ice Accretion: -DUAL BLEED FAULT -WING or ENG BLEED LEAK -X BLEED FAULT -ENG BLEED LO TEMP	FULL	10	**3 770**	+ 70	+ 140	+ 150	+ 570	+ 170	+ 930	- 450	+ 360
	3	16	**4 360**	+ 80	+ 160	+ 170	+ 610	+ 200	+ 1 150	- 580	+ 440

(1) Automatic Landing correction: add 150m - (2) Weight correction: subtract 30m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 3 450m

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

6 - DRY

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
REV UNLOCK with buffet	3	10	**1 260**	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 10	+ 840
	1	40	**1 710**	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 20	+ 790
SHUTDOWN with ENG FIRE pushbutton pushed and Ice Accretion	FULL	10	**1 240**	+ 40	+ 70	+ 50	+ 120	+ 40	+ 20	- 10	+ 600
	3	16	**1 340**	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20	+ 760

(1) Automatic Landing correction: add 140m - (2) Weight correction: subtract 10m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 090m

5 - GOOD

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
REV UNLOCK with buffet	3	10	**1 660**	+ 50	+ 120	+ 90	+ 230	+ 70	+ 60	- 50	+ 610
	1	40	**2 260**	+ 60	N/A	+ 110	+ 250	+ 100	+ 80	- 80	+ 580
SHUTDOWN with ENG FIRE pushbutton pushed and Ice Accretion	FULL	10	**1 600**	+ 50	+ 110	+ 80	+ 220	+ 70	+ 50	- 40	+ 440
	3	16	**1 770**	+ 50	+ 120	+ 90	+ 230	+ 80	+ 60	- 60	+ 550

(1) Automatic Landing correction: add 140m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 410m

4 - GOOD TO MEDIUM

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
REV UNLOCK with buffet	3	10	**1 880**	+ 40	+ 100	+ 70	+ 200	+ 70	+ 80	- 90	+ 730
	1	40	**2 400**	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 120	+ 700
SHUTDOWN with ENG FIRE pushbutton pushed and Ice Accretion	FULL	10	**1 810**	+ 40	+ 100	+ 70	+ 190	+ 70	+ 80	- 80	+ 520
	3	16	**1 980**	+ 40	+ 100	+ 70	+ 190	+ 70	+ 80	- 90	+ 660

(1) Automatic Landing correction: add 140m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 660m

3 - MEDIUM

Corrections on Landing Distance (m)	WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing(1), maximum manual braking, VAPP = VREF+ΔVREF without APPR COR.

FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T above 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C above ISA	Per 1% Down Slope	Per Thrust Reverser Operative	If OVW PROC applied
REV UNLOCK with buffet	3	10	**2 110**	+ 40	+ 110	+ 80	+ 230	+ 70	+ 120	- 120	+ 680
	1	40	**2 690**	+ 50	N/A	+ 100	+ 240	+ 90	+ 130	- 160	+ 660
SHUTDOWN with ENG FIRE pushbutton pushed and Ice Accretion	FULL	10	**2 010**	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 110	+ 490
	3	16	**2 220**	+ 40	+ 110	+ 80	+ 230	+ 80	+ 120	- 130	+ 620

(1) Automatic Landing correction: add 140m - (2) Weight correction: subtract 20m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 1 860m

2 - MEDIUM TO POOR

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
REV UNLOCK with buffet	3	10	**2 490**	+ 80	+ 180	+ 140	+ 390	+ 130	+ 200	- 150	+ 440
	1	40	**3 410**	+ 100	N/A	+ 180	+ 430	+ 160	+ 260	- 260	+ 460
SHUTDOWN with ENG FIRE pushbutton pushed and Ice Accretion	FULL	10	**2 310**	+ 70	+ 140	+ 120	+ 350	+ 110	+ 160	- 130	+ 340
	3	16	**2 650**	+ 80	+ 170	+ 140	+ 390	+ 140	+ 210	- 170	+ 410

(1) Automatic Landing correction: add 150m - (2) Weight correction: subtract 30m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 2 080m

1 - POOR

Corrections on Landing Distance (m)				WGT(2)	SPD	ALT	WIND	TEMP	SLOPE	REV	OVW
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T above 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C above ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**	**If OVW PROC applied**
REV UNLOCK with buffet	3	10	**3 830**	+ 90	+ 170	+ 150	+ 540	+ 170	+ 830	- 540	+ 440
	1	40	**4 850**	+ 100	N/A	+ 190	+ 580	+ 200	+ 940	- 680	+ 460
SHUTDOWN with ENG FIRE pushbutton pushed and Ice Accretion	FULL	10	**3 470**	+ 80	+ 140	+ 140	+ 510	+ 150	+ 680	- 430	+ 340
	3	16	**3 990**	+ 90	+ 160	+ 160	+ 540	+ 170	+ 830	- 550	+ 410

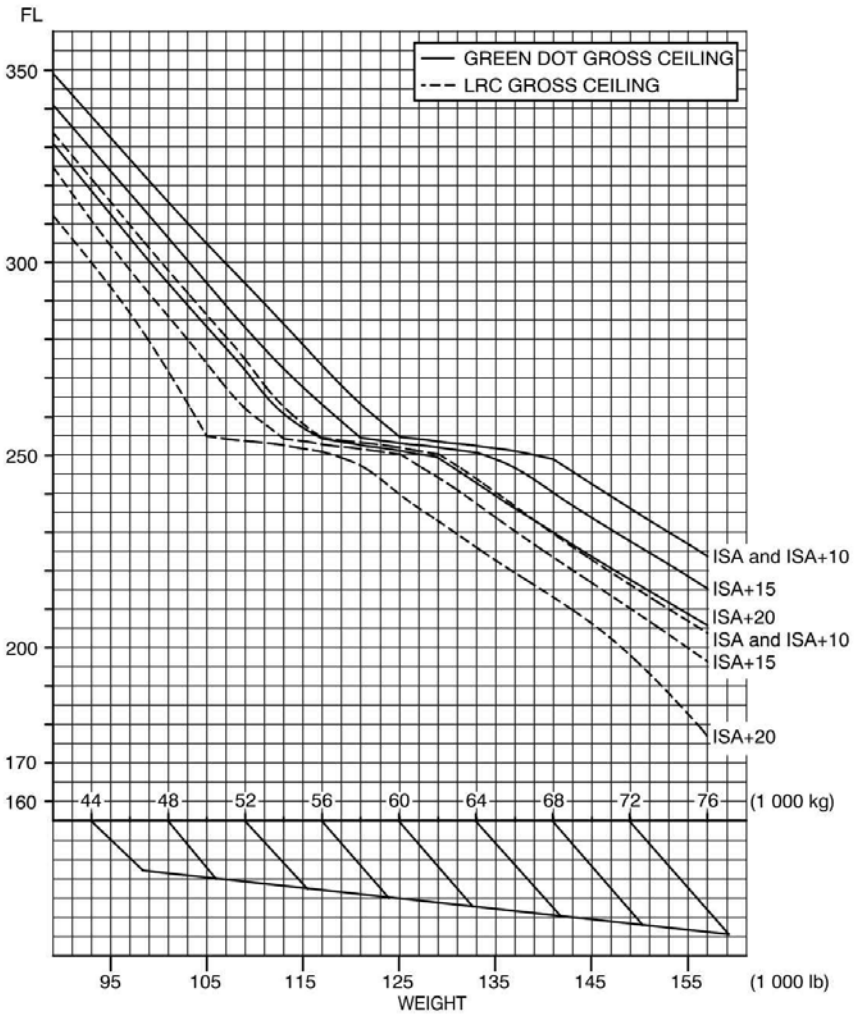
(1) Automatic Landing correction: add 150m - (2) Weight correction: subtract 40m per 1T below 66T

REF DIST without failure (valid for all FLAPS LEVER positions) = 3 450m

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA	ISA + 10	ISA + 15	ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-200 ft	-1 200 ft	-1 800 ft	-7 800 ft
	TOTAL ANTI ICE ON	-900 ft	-3 900 ft	-9 600 ft	-11 700 ft
GREEN DOT	ENGINE ANTI ICE ON	-200 ft	-1 200 ft	-1 200 ft	-2 000 ft
	TOTAL ANTI ICE ON	-1 200 ft	-3 400 ft	-4 200 ft	-4 900 ft

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST
PACK FLOW HI
ANTI-ICING OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL (1000KG)
LEVEL OFF (FT)

INIT.GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50			83 16 196 .4 30700	205 38 196 1.0 31000	253 47 200 1.2 31200	284 52 202 1.3 31200	308 56 204 1.4 31300
52			170 32 200 .9 29900	237 44 202 1.2 30000	273 51 204 1.3 30100	301 55 206 1.5 30200	322 58 208 1.5 30200
54		102 20 202 .6 28700	207 39 204 1.1 29000	255 48 206 1.3 29100	287 53 208 1.5 29200	311 57 210 1.5 29200	331 60 212 1.6 29200
56		174 33 206 1.0 27800	238 45 208 1.3 28000	276 51 210 1.5 28100	304 56 212 1.6 28200	324 59 214 1.6 28200	345 62 216 1.7 28200
58		215 41 210 1.2 26900	262 49 212 1.5 27000	294 55 214 1.6 27100	320 59 216 1.7 27200	339 62 218 1.8 27200	358 65 220 1.8 27200
60		244 46 214 1.4 26000	283 53 216 1.6 26100	311 58 218 1.7 26100	334 61 220 1.8 26200	353 64 222 1.9 26200	369 67 224 1.9 26300
62		176 33 218 1.0 25400	220 41 220 1.2 25400	240 44 222 1.3 25400	267 48 224 1.4 25400	302 54 226 1.6 25400	321 57 228 1.7 25400
64		117 21 222 .7 25200	149 27 224 .8 25200	175 31 226 .9 25300	197 35 228 1.0 25300	216 37 230 1.1 25300	233 40 232 1.2 25300
66		98 18 226 .6 25100	126 22 228 .7 25100	149 26 230. .8 25100	169 29 232 .9 25100	187 32 234 .9 25100	203 34 236 1.0 25100
68	26 5 226 .2 24900	94 17 230 .5 25000	120 21 232 .7 25000	141 24 234 .8 25000	153 26 236 .8 25000	170 28 238 .8 25000	185 30 240 .9 25000
70	119 21 230 .8 24500	182 32 234 1.2 24600	205 36 236 1.3 24600	222 39 238 1.3 24700	238 41 240 1.4 24700	253 43 242 1.4 24700	
72	153 27 234 1.1 23900	214 38 238 1.4 24000	234 41 240 1.5 24100	252 44 242 1.6 24100	268 46 244 1.6 24100	284 48 246 1.7 24100	
74	178 32 238 1.3 23400	232 41 242 1.6 23500	253 44 244 1.7 23500	270 47 246 1.7 23500	286 49 248 1.8 23500	300 51 250 1.8 23500	
76	196 35 242 1.4 22800	246 43 246 1.7 22900	264 46 248 1.8 22900	280 48 250 1.8 22900	295 50 252 1.9 23000	311 52 254 1.9 23000	
78	209 37 246 1.6 22300	256 44 250 1.8 22300	274 47 252 1.9 22300	291 50 254 1.9 22400	306 52 256 2.0 22400		

CORRECTIONS	DISTANCE	TIME	FUEL	LEVEL OFF
ENGINE ANTI ICE ON	+ 3 %	+ 3 %	+ 7 %	- 100 FT
TOTAL ANTI ICE ON	+ 8 %	+ 8 %	+ 10 %	- 700 FT

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS PACK FLOW HI ANTI-ICING OFF			ISA CG=33.0%	N1 (%) FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	75.5 .453 1891 251	79.5 .492 1848 248	82.2 .520 1802 242	83.3 .533 1778 238	84.7 .549 1771 236	85.8 .560 1750 231
52	76.7 .463 1967 256	80.5 .500 1915 252	82.9 .524 1856 244	84.3 .541 1851 242	85.5 .554 1833 238	86.7 .567 1825 234
54	77.8 .471 2041 261	81.4 .507 1983 255	83.8 .532 1925 248	85.2 .548 1920 246	86.2 .558 1896 240	87.4 .568 1880 235
56	78.9 .479 2112 265	82.4 .514 2049 259	84.6 .539 1996 251	85.9 .553 1983 248	87.0 .565 1969 243	88.4 .577 1975 238
58	79.7 .485 2175 268	83.1 .519 2107 261	85.5 .546 2068 255	86.5 .557 2045 250	87.7 .569 2035 245	89.5 .586 2075 242
60	80.4 .490 2233 271	83.7 .522 2160 263	86.2 .551 2132 257	87.2 .562 2112 252	88.4 .571 2100 246	90.6 .595 2178 246
62	81.1 .495 2292 274	84.3 .527 2219 266	86.8 .555 2194 259	88.0 .569 2190 255	89.6 .583 2211 251	92.1 .610 2302 253
64	82.0 .502 2363 278	85.0 .533 2289 269	87.4 .559 2258 261	88.6 .570 2247 256	90.5 .590 2306 254	92.4 .601 2323 249
66	82.8 .508 2431 281	85.8 .539 2361 272	88.1 .564 2330 264	89.4 .575 2327 258	91.5 .599 2413 258	92.6 .582 2315 241
68	83.6 .514 2499 284	86.5 .545 2434 275	88.8 .570 2406 266	90.3 .584 2434 263	92.7 .609 2523 263	
70	84.3 .519 2563 287	87.2 .550 2503 278	89.3 .571 2463 267	91.2 .591 2529 266	93.1 .601 2547 260	
72	84.8 .522 2619 289	87.7 .554 2566 280	90.0 .576 2546 269	92.2 .599 2638 269	93.3 .585 2543 252	
74	85.3 .524 2672 291	88.2 .557 2628 281	91.0 .585 2657 274	93.3 .609 2752 274	93.5 .554 2524 238	
76	85.8 .528 2731 293	88.8 .561 2695 283	91.8 .591 2754 277	93.6 .603 2778 271		
78	86.4 .533 2802 295	89.3 .565 2766 286	92.6 .598 2861 280	93.9 .591 2784 265		
ENGINE ANTI ICE ON △FUEL = + 3.5 %				TOTAL ANTI ICE ON △FUEL = + 7 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6 MIN)

REF. INITIAL WEIGHT = 55000 KG
PACK FLOW HI
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1379 0.46	1188 0.44	1061 0.42	1017 0.42	978 0.41	961 0.41	9	7	8
300	2055 1.06	1811 1.03	1641 1.01	1583 1.00	1533 0.59	1511 0.59	15	14	17
400	2727 1.26	2430 1.22	2217 1.19	2146 1.18	2085 1.17	2058 1.17	21	21	24
500	3394 1.46	3046 1.41	2790 1.37	2705 1.35	2632 1.34	2601 1.34	27	27	32
600	4058 2.06	3658 2.00	3359 1.55	3260 1.53	3175 1.52	3140 1.52	32	34	40
700	4718 2.27	4266 2.20	3924 2.14	3812 2.11	3713 2.10	3676 2.09	38	40	47
800	5373 2.48	4870 2.39	4485 2.32	4360 2.29	4248 2.28	4207 2.27	44	46	54
900	6024 3.09	5471 2.59	5042 2.51	4904 2.47	4780 2.46	4734 2.45	50	53	60
1000	6672 3.29	6067 3.18	5596 3.10	5445 3.06	5307 3.04	5257 3.02	56	59	67
1100	7315 3.51	6661 3.38	6146 3.28	5982 3.24	5831 3.22	5777 3.20	62	65	74
1200	7955 4.12	7251 3.58	6693 3.47	6516 3.42	6352 3.40	6293 3.38	68	71	80
1300	8590 4.33	7837 4.17	7237 4.06	7047 4.00	6869 3.58	6806 3.55	73	77	86
1400	9222 4.55	8421 4.37	7777 4.25	7574 4.19	7382 4.16	7315 4.13	79	83	93

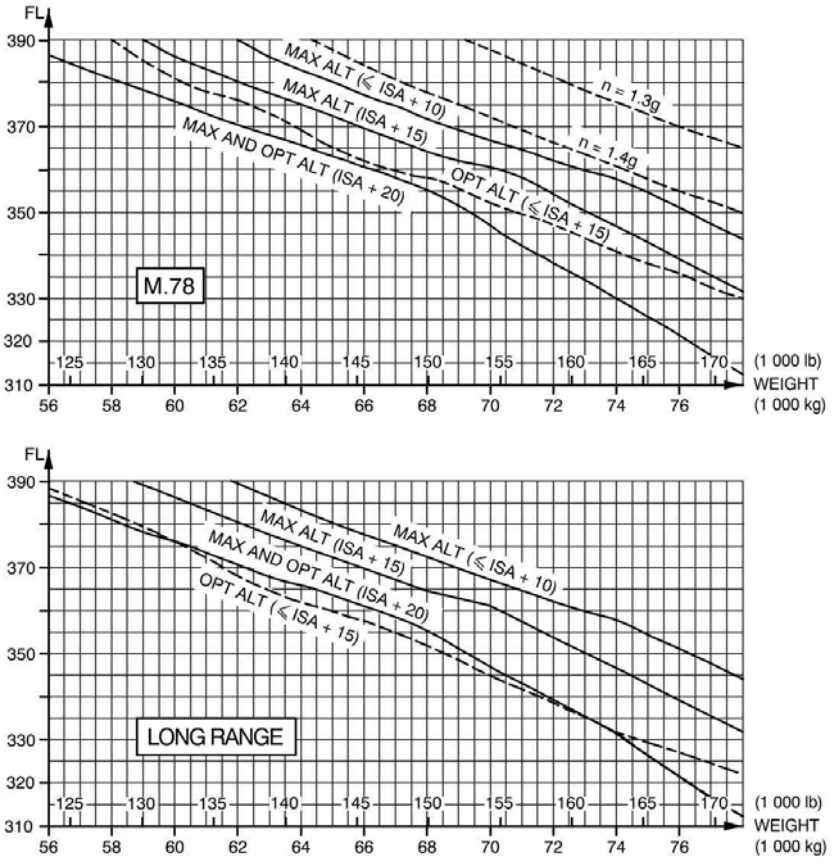
ENGINE ANTI ICE ON
△FUEL = + 2.5 %

TOTAL ANTI ICE ON
△FUEL = + 5 %

FLIP23D A320-214 CFM56-5B4/P SA3610 03301.001011 0300250 .7801 .00100 120 0300350 55 0 100100 35100 18590 CL-NO-04-08-170

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES



CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
ISA	Max ALT : -200 ft. Opt ALT : -200 ft	Max ALT : -500 ft Opt ALT : -300 ft
ISA +10	Max ALT : -1 500 ft Opt ALT : -400 ft	Max ALT : -4 200 ft Opt ALT : -3 100 ft
ISA +15	Max ALT : -3 500 ft Opt ALT :-3 500 ft	Max ALT : -4 800 ft Opt ALT : -4 300 ft
ISA +20	Max ALT : -5 300 ft Opt ALT : -3 800 ft	Max ALT : -6 500 ft Opt ALT : -6 200 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
200	974 0.35	915 0.35	863 0.36	818 0.36	782 0.36	758 0.36	0	1	4
400	2147 1.01	2023 1.02	1913 1.02	1822 1.02	1756 1.03	1727 1.03	5	9	16
600	3315 1.27	3124 1.28	2957 1.28	2818 1.29	2720 1.29	2682 1.29	10	16	33
800	4477 1.53	4218 1.54	3993 1.55	3806 1.56	3674 1.56	3622 1.56	15	23	45
1000	5634 2.19	5306 2.20	5023 2.21	4787 2.22	4617 2.23	4549 2.23	20	30	56
1200	6786 2.45	6387 2.46	6045 2.48	5759 2.49	5551 2.50	5463 2.50	24	37	67
1400	7933 3.11	7464 3.13	7062 3.14	6724 3.16	6475 3.17	6365 3.17	29	43	77
1600	9076 3.37	8537 3.39	8075 3.41	7683 3.42	7392 3.43	7256 3.43	33	49	86
1800	10214 4.03	9604 4.05	9081 4.07	8636 4.09	8302 4.10	8135 4.10	37	54	95
2000	11347 4.29	10665 4.31	10083 4.33	9582 4.36	9203 4.37	9004 4.37	41	60	103
2200	12475 4.55	11721 4.57	11078 5.00	10521 5.02	10098 5.04	9863 5.04	45	65	111
2400	13599 5.21	12775 5.23	12068 5.26	11454 5.29	10984 5.31	10711 5.31	49	70	118
2600	14718 5.47	13824 5.50	13052 5.53	12382 5.56	11863 5.57	11550 5.57	52	74	125
2800	15833 6.13	14869 6.16	14030 6.19	13305 6.22	12739 6.24	12382 6.24	55	79	131
3000	16944 6.39	15909 6.42	15002 6.45	14222 6.49	13608 6.51	13211 6.51	58	83	137

LOW AIR CONDITIONING △FUEL = − 0.5 %

ENGINE ANTI ICE ON △FUEL = + 3 %

TOTAL ANTI ICE ON △FUEL + + 6 %

FLIP23D A320-214 CFM56-5B4/P SA3610 03301.000011 0250300 .7800 .00200 120 0300350 60 0 100 20 20 20 18590 CL-NO-04-10-170

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 25 kg/min in the FMGC, for aircraft in metric units.
  or
- CI_{LRC} = 35 (100 lb/h) in the FMGC, for aircraft in US units.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	45				65				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	N1	TIME (MIN)	FUEL (KG)	DIST. (NM)	N1	IAS (KT)
390	16.1	204	101	68.8	17.4	165	106	IDLE	241
370	14.6	174	89	69.9	16.7	160	100	IDLE	252
350	12.9	134	77	72.1	16.0	156	95	IDLE	264
330	12.0	119	70	IDLE	15.4	153	91	IDLE	277
310	11.6	117	67	IDLE	14.8	149	86	IDLE	289
290	11.1	114	64	IDLE	14.2	145	82	IDLE	300
270	10.6	110	59	IDLE	13.4	141	76	IDLE	300
250	10.0	107	55	IDLE	12.7	136	71	IDLE	300
240	9.7	105	53	IDLE	12.3	133	68	IDLE	300
220	9.1	100	49	IDLE	11.5	127	62	IDLE	300
200	8.5	94	45	IDLE	10.6	119	56	IDLE	300
180	7.8	86	40	IDLE	9.8	109	51	IDLE	300
160	7.1	78	36	IDLE	8.8	97	45	IDLE	300
140	6.3	67	31	IDLE	7.9	83	39	IDLE	300
120	5.6	57	27	IDLE	6.9	70	33	IDLE	300
100	4.9	48	23	IDLE	6.0	58	28	IDLE	300
50	1.7	15	7	IDLE	2.1	18	9	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	–	+ 6 %	+ 6 %	–
FUEL	– 2 %	+ 28 %	+ 44 %	+ 0.2 %
DISTANCE	–	+ 3 %	+ 4 %	+ 0.3 %

11.0-08F0A320-214 CFM56-5B4/P SA2310000005KG330 0 018590 0 0-1-350.0 15.0 .00 0 03 .780300.000250.000 0 FCOM-N0-03-05-30-002-170

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 100 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 80 KG (4MIN)

REF. LDG WT AT DEST. = 55000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)
TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	522 0.12						2		
60	677 0.16	663 0.16					3		
80	831 0.19	801 0.19					5		
100	986 0.23	940 0.23	937 0.22				6	6	
120	1141 0.27	1078 0.26	1061 0.26	1073 0.25			7	7	
140	1296 0.31	1217 0.30	1186 0.29	1187 0.28			8	8	
160	1451 0.35	1356 0.33	1310 0.33	1301 0.31	1312 0.30		9	9	10
180	1607 0.38	1495 0.37	1435 0.36	1415 0.34	1417 0.33	1429 0.33	10	10	11
200	1762 0.42	1634 0.40	1559 0.40	1529 0.38	1523 0.36	1528 0.36	11	11	13
220	1918 0.46	1774 0.44	1684 0.43	1644 0.41	1629 0.39	1628 0.38	12	12	14
240	2074 0.50	1913 0.47	1809 0.47	1758 0.44	1735 0.42	1727 0.41	13	13	15
260	2231 0.53	2053 0.51	1934 0.50	1872 0.47	1841 0.45	1827 0.44	14	14	16
280	2387 0.57	2193 0.54	2060 0.53	1987 0.50	1948 0.48	1927 0.47	15	15	17
300	2544 1.01	2332 0.58	2185 0.57	2102 0.53	2054 0.51	2027 0.50	16	16	18
320	2700 1.04	2473 1.01	2310 1.00	2217 0.57	2161 0.54	2127 0.53	17	17	19
340	2857 1.08	2613 1.05	2436 1.04	2332 1.00	2267 0.57	2227 0.56	18	18	20
360	3014 1.12	2753 1.08	2562 1.07	2447 1.03	2374 1.00	2327 0.58	19	20	21
380	3170 1.16	2893 1.12	2688 1.11	2562 1.06	2481 1.03	2427 1.01	20	21	22
400	3328 1.19	3033 1.15	2814 1.14	2678 1.09	2587 1.06	2528 1.04	21	22	23
420	3485 1.23	3174 1.19	2940 1.18	2793 1.12	2694 1.09	2628 1.07	22	23	24
440	3642 1.27	3314 1.22	3066 1.21	2909 1.15	2802 1.12	2729 1.10	23	24	25
460	3800 1.30	3455 1.26	3192 1.24	3024 1.19	2909 1.15	2830 1.13	24	25	26
480	3957 1.34	3595 1.29	3319 1.28	3140 1.22	3016 1.18	2930 1.16	25	26	27
500	4115 1.38	3736 1.33	3446 1.31	3256 1.25	3123 1.21	3031 1.18	26	27	28

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 5 %	△FUEL = + 7 %

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 120 KG (6MIN)

FL100

NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG = 25.0%		FUEL CONSUMED (KG) TIME (H.MIN)		
AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	50	**55**	**60**	**65**	**70**	**75**	**80**
40	312 0.15	310 0.15	309 0.15	310 0.15	311 0.15	314 0.15	318 0.15
60	458 0.19	463 0.19	467 0.18	472 0.18	478 0.18	485 0.18	493 0.18
80	604 0.23	616 0.22	625 0.22	634 0.22	644 0.22	655 0.21	667 0.21
100	750 0.28	768 0.26	783 0.26	797 0.25	811 0.25	825 0.25	841 0.25
120	896 0.32	921 0.30	940 0.29	959 0.29	977 0.28	995 0.28	1015 0.28
140	1041 0.36	1073 0.34	1098 0.33	1121 0.32	1143 0.32	1165 0.32	1189 0.32
160	1186 0.41	1225 0.38	1255 0.37	1283 0.36	1309 0.35	1335 0.35	1363 0.35
180	1331 0.45	1377 0.42	1413 0.40	1444 0.39	1475 0.39	1504 0.38	1537 0.38
200	1476 0.50	1529 0.46	1570 0.44	1606 0.43	1640 0.42	1674 0.42	1710 0.42
220	1621 0.54	1680 0.50	1727 0.48	1767 0.46	1806 0.46	1843 0.45	1883 0.45
240	1765 0.58	1831 0.54	1884 0.51	1928 0.50	1971 0.49	2012 0.49	2056 0.48
260	1910 1.03	1982 0.58	2040 0.55	2090 0.54	2136 0.52	2181 0.52	2229 0.52
280	2054 1.07	2133 1.02	2197 0.59	2251 0.57	2302 0.56	2350 0.55	2402 0.55
300	2198 1.11	2284 1.06	2353 1.03	2411 1.01	2467 0.59	2519 0.59	2575 0.59
320	2341 1.16	2434 1.10	2510 1.06	2572 1.04	2632 1.03	2687 1.02	2748 1.02
340	2485 1.20	2585 1.14	2666 1.10	2733 1.08	2796 1.06	2856 1.06	2920 1.05
360	2628 1.25	2735 1.19	2822 1.14	2893 1.11	2961 1.10	3024 1.09	3093 1.09
380	2771 1.29	2885 1.23	2978 1.17	3053 1.15	3125 1.13	3193 1.12	3265 1.12
400	2914 1.33	3034 1.27	3133 1.21	3213 1.18	3290 1.17	3361 1.16	3437 1.15
420	3057 1.38	3184 1.31	3289 1.25	3373 1.22	3454 1.20	3529 1.19	3609 1.19
440	3199 1.42	3333 1.35	3444 1.29	3533 1.26	3618 1.23	3697 1.22	3780 1.22
460	3342 1.47	3482 1.40	3600 1.32	3693 1.29	3782 1.27	3865 1.26	3952 1.26
480	3484 1.51	3631 1.44	3755 1.36	3852 1.33	3946 1.30	4033 1.29	4124 1.29
500	3626 1.56	3780 1.48	3910 1.40	4012 1.36	4110 1.34	4200 1.33	4295 1.32
520	3768 2.00	3928 1.52	4065 1.44	4171 1.40	4273 1.37	4368 1.36	4466 1.36
540	3909 2.05	4077 1.57	4219 1.47	4330 1.44	4437 1.41	4535 1.39	4637 1.39
AIR CONDITIONING OFF △FUEL = – 2.5 %			**ENGINE ANTI ICE ON** △FUEL = + 5 %		**TOTAL ANTI ICE ON** △FUEL = + 9 %		

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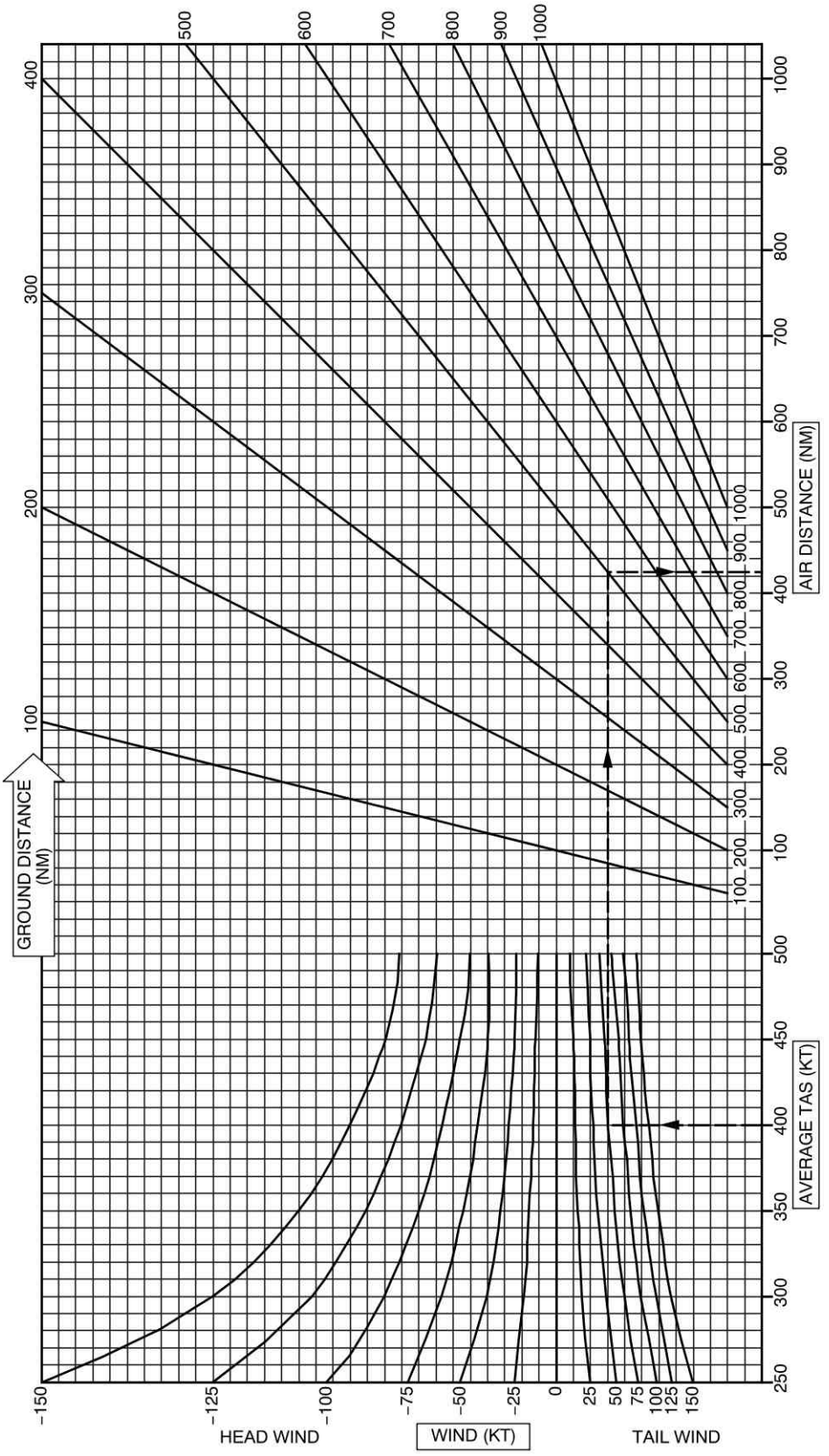
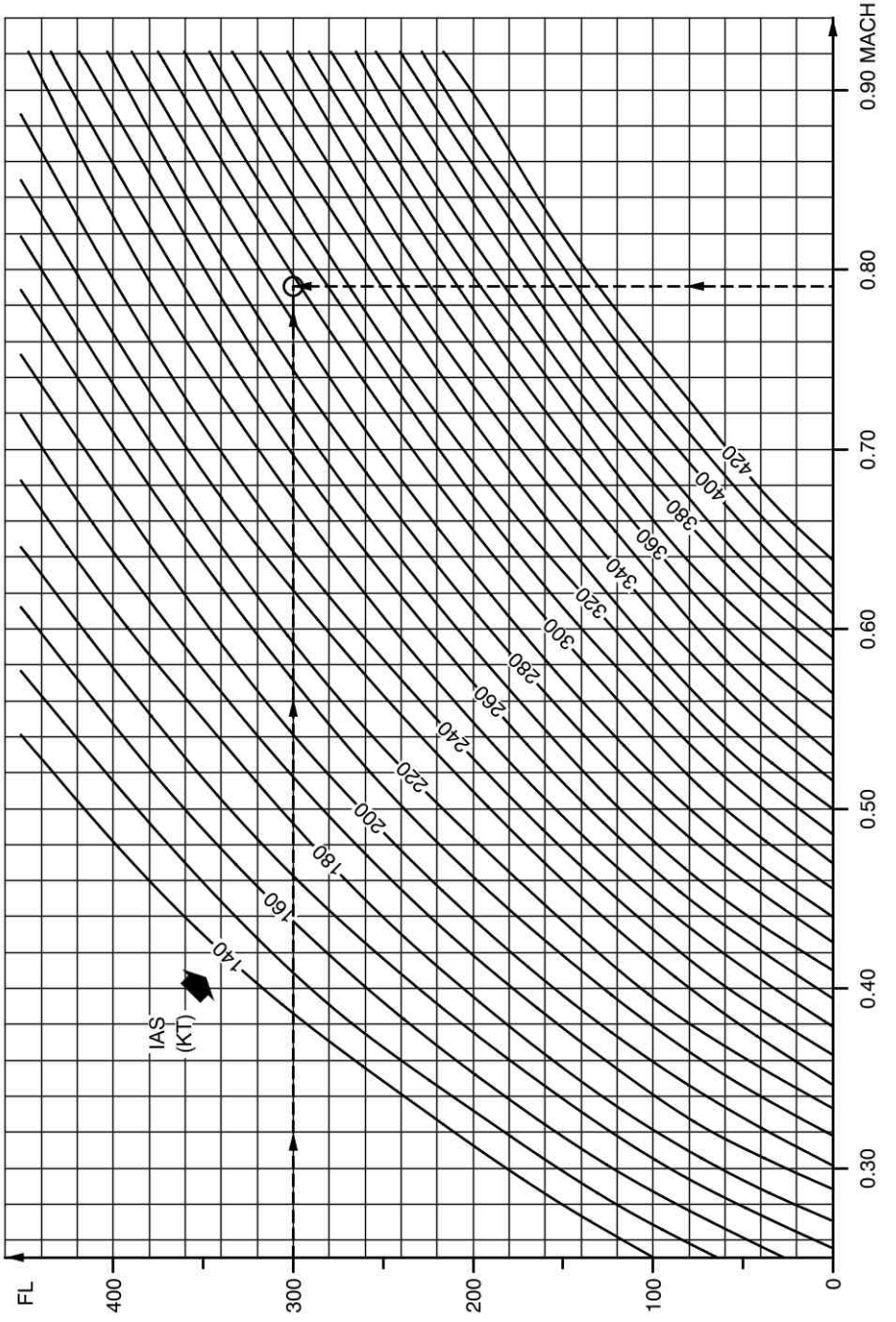
GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



ISA TEMPERATURE AND PRESSURE ALTITUDE CORRECTION

ISA Temperature

Airport Elevation (ft)	ISA Temp. (°C)
15 000	–14.7
14 000	–12.7
13 000	–10.8
12 000	–8.8
11 000	–6.8
10 000	–4.8
9 000	–2.8
8 000	–0.8
7 000	+1.1
6 000	+3.1
5 000	+5.1
4 000	+7.1
3 000	+9.1
2 000	+11.0
1 000	+13.0
0	+15.0
–1 000	+17.0
–2 000	+19.0

Example:

Airport Elevation = 1000 ft
OAT = 23°C

– With the table above, determine the ISA Temperature corresponding to the **Airport Elevation:**
→ **ISA Temp = +13°C**

– To obtain the Delta ISA Temperature, subtract the **ISA Temp** above from the **Outside Air Temperature (OAT)**
→ **Delta ISA Temp = +10°C**

Pressure Altitude Correction

QNH (hPa)	CORRECTION (ft)	QNH (in Hg)
949 – 951	+1 900	28.01 – 28.10
952 – 955	+1 800	28.11 – 28.20
956 – 958	+1 700	28.21 – 28.30
959 – 961	+1 600	28.31 – 28.40
962 – 964	+1 500	28.41 – 28.45
965 – 968	+1 400	28.46 – 28.56
969 – 971	+1 300	28.57 – 28.67
972 – 974	+1 200	28.68 – 28.77
975 – 978	+1 100	28.78 – 28.86
979 – 981	+1 000	28.87 – 28.95
982 – 984	+900	28.96 – 29.05
985 – 988	+800	29.06 – 29.15
989 – 991	+700	29.16 – 29.25
992 – 994	+600	29.26 – 29.35
995 – 997	+500	29.36 – 29.45
998 – 1 001	+400	29.46 – 29.54
1 002 – 1 004	+300	29.55 – 29.64
1 005 – 1 007	+200	29.65 – 29.74
1 008 – 1 011	+100	29.75 – 29.84
1 012 – 1 014	0	29.85 – 29.94
1 015 – 1 018	–100	29.95 – 30.04
1 019 – 1 021	–200	30.05 – 30.14
1 022 – 1 025	–300	30.15 – 30.24
1 026 – 1 028	–400	30.25 – 30.34
1 029 – 1 031	–500	30.35 – 30.44
1 032 – 1 035	–600	30.45 – 30.54
1 036 – 1 038	–700	30.55 – 30.65
1 039 – 1 042	–800	30.66 – 30.75
1 043 – 1 045	–900	30.76 – 30.85
1 046 – 1 050	–1 000	30.86 – 30.95

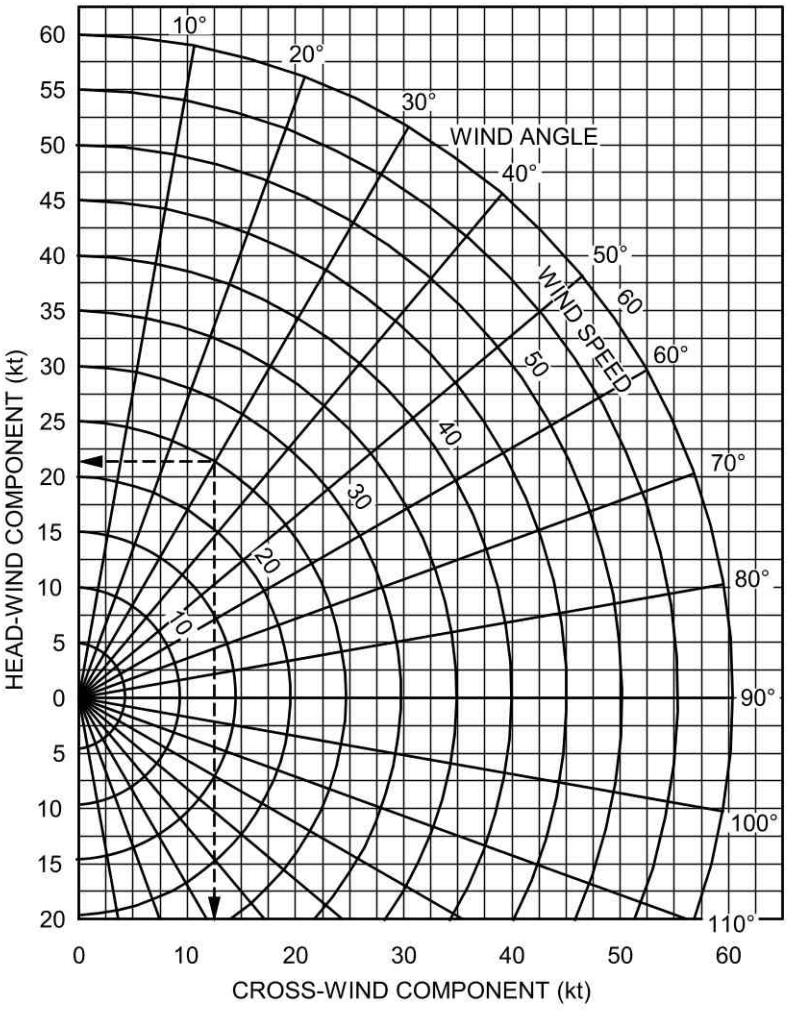
Example:

Airport Elevation = 1000 ft
QNH = 996 hPa (29.41 in Hg)

– With the table above, determine the Pressure Altitude Correction for the current **QNH:**
→ **Pressure Altitude Correction = +500 ft**

– To obtain the Airport Pressure Altitude, add the **Pressure Altitude Correction** above to the **Airport Elevation:**
→ **Airport Pressure Altitude = 1500 ft**

WIND COMPONENT



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Localization Title	Page	ID	Reason
OPS Aircraft Configuration Summary Foreword	OPS.00A	1	Documentation update: Addition of "Aircraft Configuration Summary Foreword" documentary unit
OPS Aircraft Configuration Summary Header	OPS.00A	2	Documentation update: Addition of "Aircraft Configuration Summary Header" documentary unit
OPS ADS-B OUT	OPS.00A	3	Documentation update: Addition of "ADS-B OUT" documentary unit
OPS AP Automatic Disconnection at Minima	OPS.00A	4	Documentation update: Addition of "AP Automatic Disconnection at Minima" documentary unit
OPS AP/FD TCAS	OPS.00A	5	Documentation update: Addition of "AP/FD TCAS" documentary unit
OPS Automatic FD Bar Engagement at Go-Around	OPS.00A	6	Documentation update: Addition of "Automatic FD Bar Engagement at Go-Around" documentary unit
OPS Backup Navigation Function of the MCDU	OPS.00A	7	Documentation update: Addition of "Backup Navigation Function of the MCDU" documentary unit
OPS BUSS	OPS.00A	8	Documentation update: Addition of "BUSS" documentary unit
OPS CPDLC	OPS.00A	9	Documentation update: Addition of "CPDLC" documentary unit
OPS Derated Takeoff	OPS.00A	10	Documentation update: Addition of "Derated Takeoff" documentary unit
OPS FLS Function in the FMS	OPS.00A	11	Documentation update: Addition of "FLS Function in the FMS" documentary unit
OPS FMS2 Release 1A	OPS.00A	12	Documentation update: Addition of "FMS2 Release 1A" documentary unit
OPS GLS	OPS.00A	13	Documentation update: Addition of "GLS" documentary unit
OPS GPS	OPS.00A	14	Documentation update: Addition of "GPS" documentary unit
OPS GPS PRIMARY Function	OPS.00A	15	Documentation update: Addition of "GPS PRIMARY Function" documentary unit
OPS Metric Altitude Indications on the PFD	OPS.00A	16	Documentation update: Addition of "Metric Altitude Indications on the PFD" documentary unit
OPS MLS	OPS.00A	17	Documentation update: Addition of "MLS" documentary unit
OPS NAV Mode Automatically Engaged (Armed) at Go-Around	OPS.00A	18	Documentation update: Addition of "NAV Mode Automatically Engaged (Armed) at Go-Around" documentary unit
OPS PWS	OPS.00A	19	Documentation update: Addition of "PWS" documentary unit
OPS QFE Baro Setting	OPS.00A	20	Documentation update: Addition of "QFE Baro Setting" documentary unit
OPS RNP AR	OPS.00A	21	Documentation update: Addition of "RNP AR" documentary unit
OPS ROW/ROPS	OPS.00A	22	Documentation update: Addition of "ROW/ROPS" documentary unit
OPS Required Equipment for CAT2 and CAT3	OPS.04A	23	The abbreviation "PNF" is replaced by "PM" (Pilot Monitoring). No other technical change.
OPS Required Equipment for RNAV Procedures before IAF	OPS.05A	24	**Added, new content related to FAILURES AFTER IAF (IF VISUAL REFERENCES ARE NOT SUFFICIENT).** **Added, required equipments for RNAV(GNSS) and RNAV(RNP) (FAC, ELAC, SFCC, RA).** **Added column for RNAV(GNSS)/(RNAV(GPS) LNAV, RNAV(GNSS)/RNAV(GPS) LNAV/VNAV.**
OPS Pre-Departure Fault Resolution Process	OPS.NA	25	Documentation update: Addition of "Pre-Departure Fault Resolution Process" documentary unit

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AIRCRAFT CONFIGURATION SUMMARY

1 For awareness and for the specified aircraft, the following table provides the flight crew with a list of optional aircraft systems and functions related to aircraft flight operations.

2

Item	System	Installed
3 ADS-B OUT	SURV	No
4 AP Automatic Disconnection at Minima	AUTO FLT	No
5 AP/FD TCAS	AUTO FLT	No
6 **Automatic FD Bar Engagement at Go-Around**	**AUTO FLT**	**Yes**
7 **Backup Navigation Function of the MCDU**	**AUTO FLT**	**Yes**
8 **BUSS**	**NAV**	**Yes**
9 **CPDLC**	**DATALINK**	**Yes**
10 Derated Takeoff	ENG	No
11 FLS Function in the FMS	AUTO FLT	No
12 **FMS 2 Release 1A**	**AUTO FLT**	**Yes**
13 GLS	AUTO FLT	No
14 **GPS**	**NAV**	**Yes**
15 **GPS PRIMARY Function**	**NAV**	**Yes**
16 Metric Altitude Indications on the PFD	EIS	No
17 MLS	AUTO FLT	No
18 **NAV Mode Automatically Engaged (Armed) at Go-Around**	**AUTO FLT**	**Yes**
19 **PWS**	**SURV**	**Yes**
20 QFE BARO Setting	NAV	No
21 **RNP AR**	**AUTO FLT**	**Yes**
22 ROW / ROPS	SURV	No

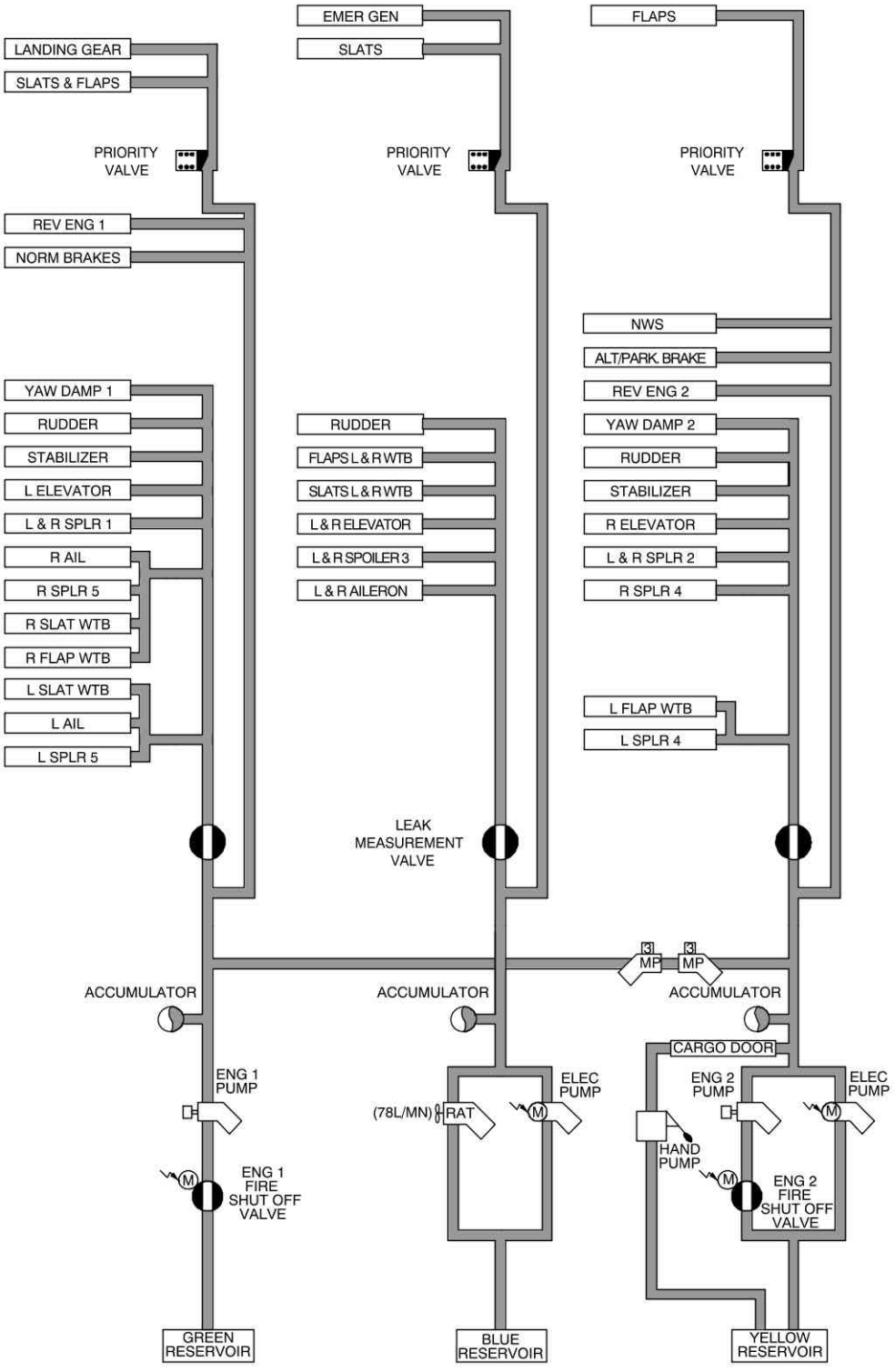
SEVERE TURBULENCE

SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED										
FL	SPD or Mach	GROSS WEIGHT (1000 kg)								
		44	48	52	56	60	64	68	72	76
		N1 %								
390	0.76	80.0	81.0	82.0	83.1	-	-	-	-	-
370	0.76	79.1	79.8	80.7	81.6	82.6	83.6	-	-	-
350	0.76	78.8	79.3	80.0	80.7	81.5	82.4	83.3	84.3	-
330	0.76	78.8	79.3	79.8	80.4	81.0	81.8	82.6	83.4	84.2
310	275	78.1	78.6	79.2	79.8	80.3	80.9	81.5	82.3	83.1
290	275	76.6	77.1	77.6	78.2	78.9	79.6	80.3	81.0	81.7
270	275	75.1	75.6	76.1	76.7	77.3	78.0	78.7	79.6	80.5
250	275	73.5	74.0	74.5	75.1	75.8	76.5	77.2	77.9	78.8
200	275	69.9	70.3	70.7	71.2	71.8	72.4	73.0	73.7	74.4
150	250	61.9	62.6	63.3	64.0	64.9	65.9	66.9	68.0	68.9
100	250	58.3	59.0	59.6	60.2	61.0	61.8	62.6	63.5	64.5
50	250	54.3	54.9	55.6	56.3	57.1	58.0	59.0	60.0	60.8

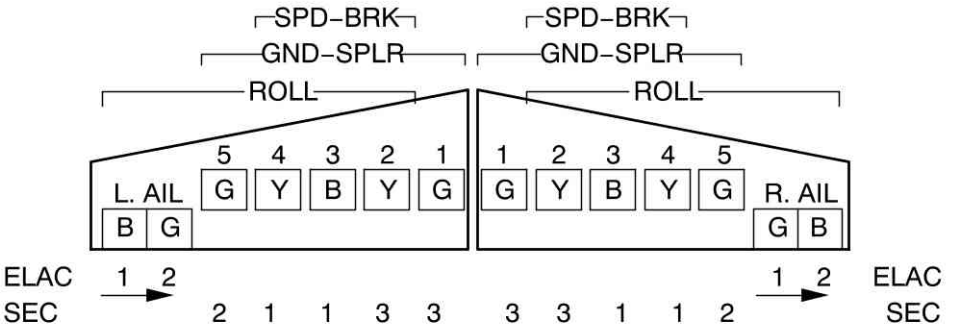
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

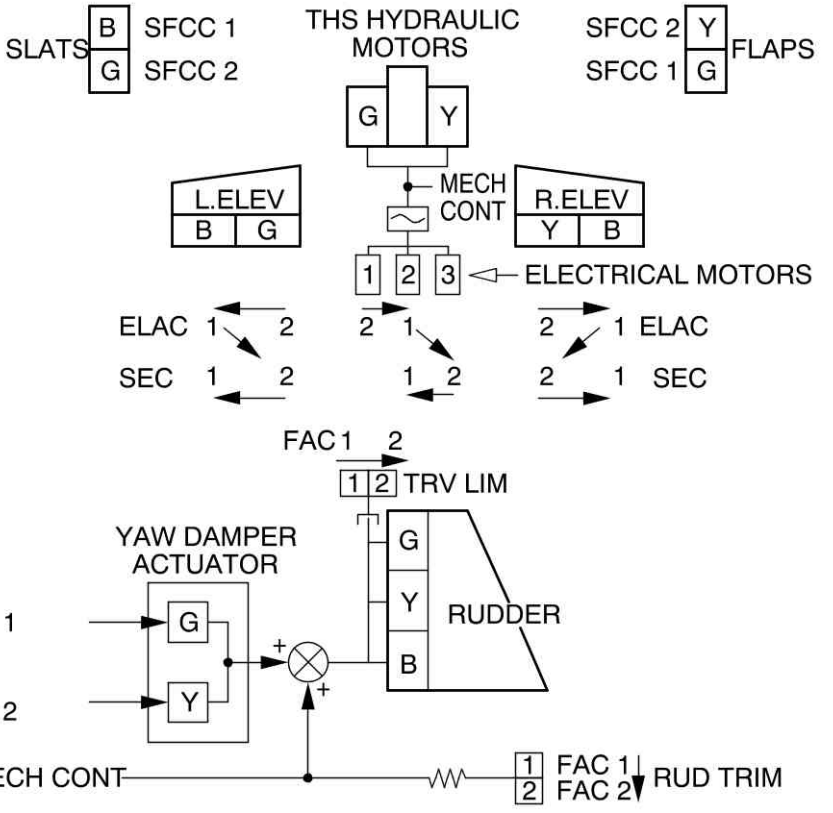
- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE





→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

23

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PM	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PM		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note:
- *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

REQUIRED EQUIPMENT FOR RNAV PROCEDURES BEFORE IAF

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EQUIPMENT	RNAV(GNSS) RNAV(GPS) LNAV	RNAV(GNSS) RNAV(GPS) LNAV/VNAV	RNP AR 0.3	RNP AR<0.3
FMGC	1	1	2	2
GPS (MMR)	1	1	2	2
MCDU	1	1	2	2
FD	1(PF SIDE)	1(PF SIDE)	2	2
AP	0	0	1	2
PFD	1(PF SIDE)	1 (PF SIDE)	2	2
L / DEV on PFD	0	0	2	2
V / DEV on PFD	0 (*)	1	2	2
ND	1(PF SIDE)	1 (PF SIDE)	2	2
FCU Channels	2	2	2	2
ADIRS in NAV mode	2(**)	3	3	3
FAC	1	1	2	2
ELAC	1	1	2	2
SFCC	1	1	2	2
RA	0	1(***)	2	2
EGPWS	0	0	1	1
NAV DATA BASE	Current	Current	Current	Current

(*) If FINAL APP mode not used.
(**) If ADR 2 is inoperative Do not used FINAL APP Mode.
(***)RA1 must be operative.
Dispatch for RNAV (RNP) - RNAV (RNP)/(GPS) operations will be MEL based.
It is not necessary check the require equipment before commencing the approach. equipment for RNAV procedures".
In case of ECAM messages or failures occurred during flight, the crew must to confirm the RNAV capabilities listed above.

REQUIRED EQUIPMENT FOR RNAV PROCEDURES BEFORE IAF (Cont'd)

FAILURES AFTER IAF (IF VISUAL REFERENCES ARE NOT SUFFICIENT)	
RNAV (GNSS) / (GPS)	**RNAV RNP**
For approaches with LNAV and LNAV/VNAV minima: Use the appropriate remaining AP/FD in the following cases: • Single AP FAILURE • SINGLE FMGC FAIL • GPS PRIMARY LOST on one ND • NAV ACCUR DOWNGRAD on one FMGS Discontinue the approach in the following cases If visual references are not sufficient: • GPS PRIMARY LOST on both NDs • XTK > 0.3 nm • NAV FM/GPS POS DISAGREE on ECAM • NAV ACCUR DOWNGRAD on both FMGS **For approaches with LNAV minima:** In the case of deviation of 75 ft below the vertical path (V/DEV>¾ dot).	The approach may be continued in case of single failure of: • 1 GPS (MMR) • 1 FMGC • 1 EFIS DU • 1 MCDU • 1 AP If one engine fails in approach with NAV or FINAL APP mode: - If RNP < 0.3 nm, the flight crew must perform a Go-Around - If RNP = 0.3 nm, except the aircrafts described in LIM-22-10, the flight crew must disconnect the AP and may continue the approach with FDs engaged. **Discontinue the approach in the following cases If visual references are not sufficient:** • FINAL APP does not engage • GPS PRIMARY LOST on both NDs • Dual NAV ACCUR DOWNGRAD • FM/GPS POSITION DISAGREE • FMS1/FMS2 POS DIFF • Dual loss of FMGC or dual loss of FINAL APP mode • Dual AP failure if the RNP < 0.3 nm • Loss of GPWS TERRAIN if obstacles or TERRAIN inconsistencies • NAV ALT DISCREPANCY

PRE-DEPARTURE FAULT RESOLUTION PROCESS

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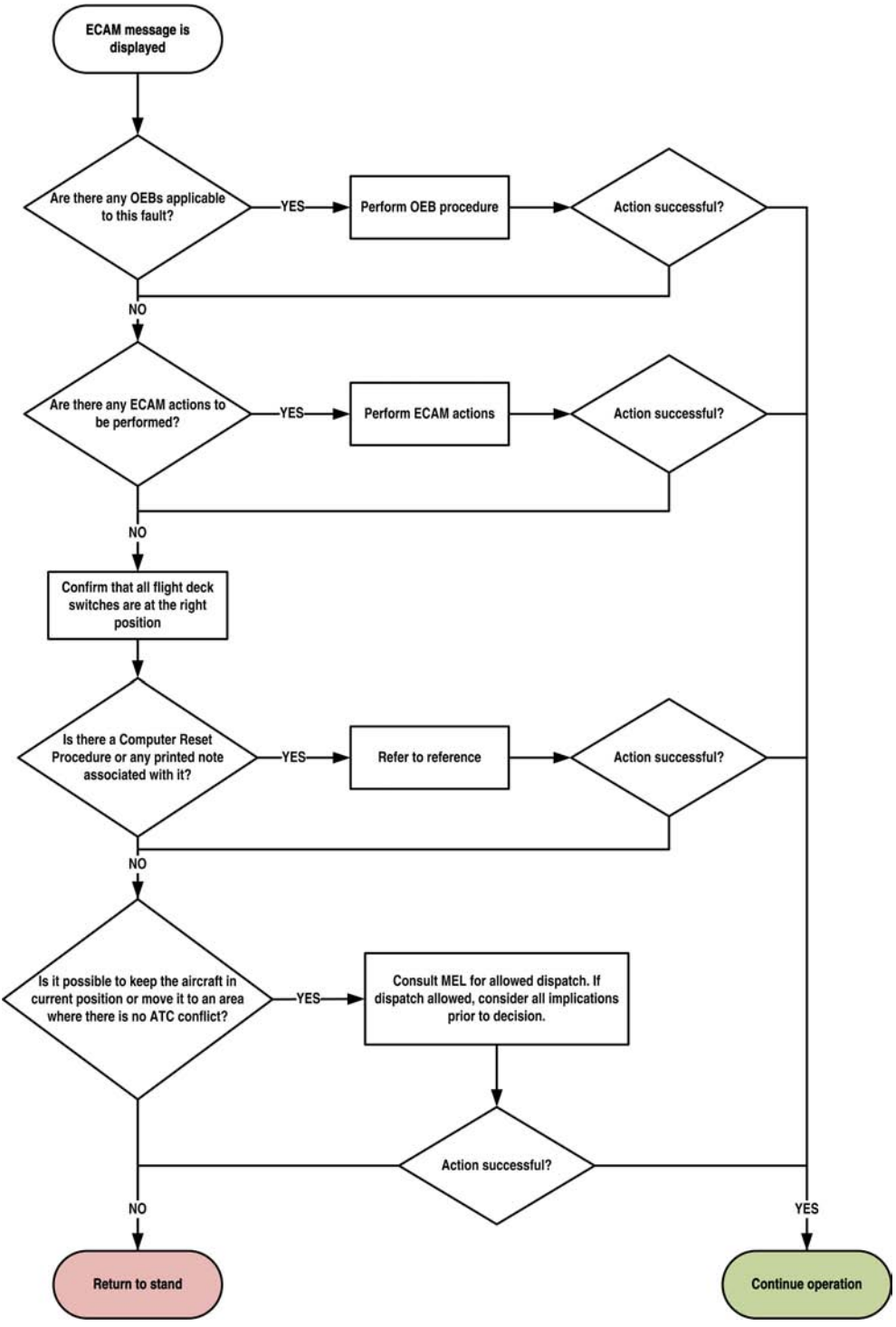
The aim of the following guidance is to increase dispatch and departure reliability by helping the flight crew decision making process in situations where a fault occurs between pushback and takeoff roll.



PRE-DEPARTURE FAULT RESOLUTION PROCESS (Cont'd)

In case the fault is not resolved by executing any OEB procedure, ECAM procedure or Computer Reset, the Captain will decide whether the operation can continue or if the aircraft has to return to the stand.

The level of degradation generated by the fault and the information provided on the MEL must be taken into account. The following conditions must be analyzed:

- Takeoff, En-Route and Landing performance
- Effect of the weather conditions in association with the fault(s)
- Type of goods being carried in that flight
- Navigation and Approach capability degradation
- Possibility to apply or not the operational (o) procedure described on the MEL
- Aircraft serviceability consequences at destination.

The flight crew may consider contacting the ground mechanic for immediate support or the MCC via radio or SATCOM. Support Pilots are also available for advice and may be consulted.

Identification	Title
OEB38 **Issue 2**	**Erroneous Radio Altimeter Height Indication** ECAM Entry None
OEB41 Issue 1	Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan ECAM Entry None
OEB48 **Issue 1**	**Abnormal V Alpha Prot** ECAM Entry None

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Localization Title	Page	ID	Reason
OEBPROC-48 Abnormal V Alpha Prot	48.01A	1	Documentation update: Addition of "Abnormal V Alpha Prot" documentary unit

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ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:

During all phases of flight, the flight crew must monitor and crosscheck all primary flight parameters and FMA indications.

- **During an ILS (or MLS, or GLS) approach with AP engaged:**
  - **In the event of an early/untimely FLARE and THR IDLE mode engagement (possibly associated with AUTOLAND warning and/or RETARD callout), the flight crew must:**
    - **Immediately** perform an automatic go-around (thrust levers set to TOGA),
      OR
    - **Immediately** disconnect AP and set both FDs to OFF. If external visual references are sufficient, the approach may be continued manually.

    Note: - *If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value,*
    - *In CONF FULL, the auto-trim function is inhibited. In manual flight, a significant longitudinal sidestick input may be required.*

- **During go-around**
  - **If SRS and GA TRK modes remain engaged and other guidance modes cannot be selected or engaged as expected:**

    Note: - *At the thrust reduction altitude, LVR CLB will not be displayed on the FMA,*
    - *ALT* and ALT will not engage at the FCU altitude.*

    Disconnect APs.
    Set both FDs to OFF then ON. FDs revert to basic modes (HDG - V/S).
    Re-engage guidance modes as appropriate.

- **For the approach that follows the go-around:** Do not arm the G/S mode.

Flight crews must report, in the technical logbook, any of the consequences of an erroneous RA height listed in the OEB N°38.

END OF OEB38

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ERRONEOUS ALTERNATE FUEL PREDICTIONS UPON MODIFICATION OF A COMPANY ROUTE IN THE ALTERNATE FLIGHT PLAN

ECAM ENTRY

None

PROCEDURE

This OEB PROC N°41 is issued to provide flight crews with the following recommendations:
This procedure only applies when a CO RTE is used for ALTN F-PLN. In the case of ALTN fuel predictions erroneously set to zero further to a modification of this ALTN F-PLN:

ENTER manually a waypoint in the en-route F-PLN (neither in the departure, nor in the arrival), to start a new computation of ALTN fuel predictions
Maintain or delete the entered waypoint at convenience
Check the ALTN fuel predictions are correct

END OF OEB41

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ABNORMAL V ALPHA PROT

ECAM ENTRY

None

PROCEDURE

CAUTION	Monitor the Alpha Prot strip and the Alpha max strip when they are visible.

- **AT ANY TIME, with a speed above VLS, if the aircraft goes to a CONTINUOUS NOSE DOWN PITCH RATE that cannot be stopped with backward sidestick inputs, IMMEDIATELY APPLY:**

  ONE ADR ..... KEEP ON
  TWO ADRs..... OFF

- **If the Alpha Max strip (red) completely hides the Alpha Prot strip (black and amber) in a stabilized wings-level flight path (without an increase in load factor):**

  ONE ADR .....KEEP ON
  TWO ADRs.....OFF

CAUTION	RISK OF ERRONEOUS DISPLAY OF THE VSW STRIP (RED AND BLACK)

  FPV USE..... CONSIDER

- **If the Alpha Prot strip (black and amber) rapidly moves by more than 30 kt during flight maneuvers (with an increase in load factor), with AP ON and speed brakes retracted:**

  ONE ADR .....KEEP ON
  TWO ADRs.....OFF

CAUTION	RISK OF ERRONEOUS DISPLAY OF THE VSW STRIP (RED AND BLACK)

  FPV USE..... CONSIDER

END OF OEB48

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BEFORE START

COCKPIT PREP..... COMPLETED (BOTH)
GEAR PINS and COVERS.....REMOVED
SIGNS.....ON/AUTO
ADIRS ..... NAV
FUEL QUANTITY..... _____KG
TO DATA..... SET
BARO REF..... _____SET (BOTH)

WINDOWS/DOORS.....CLOSED (BOTH)
BEACON.....ON
THR LEVERS..... IDLE
PARKING BRAKE.....AS RQRD
Consider ONE ENGINE TAXI

AFTER START

ANTI ICE.....AS RQRD
PACK 1..... AS RQRD
ECAM STATUS.....CHECKED
PITCH TRIM..... _____SET
RUDDER TRIM.....ZERO
GROUND EQPT and MECHANIC.....REMOVED
Y ELEC PUMP.....AS RQRD
X BLEED.....AS RQRD

BEFORE TAKEOFF

FLIGHT CONTROLS..... CHECKED (BOTH)
FLT INST..... CHECKED (BOTH)
BRIEFING..... CONFIRMED
FLAP SETTING.....CONF_____(BOTH)
V1. VR. V2/FLX TEMP..... _____(BOTH)
ATC .....SET
ECAM MEMO..... TO NO BLUE
- *AUTO BRK MAX*
- *SIGNS ON*
- *SPLRS ARM*
- *CABIN READY* ⊲
- *FLAPS TO*
- *TO CONFIG NORM*

* GPS MONITOR.....ONE NAV**
* GPS PRIMARY.....CHECKED
* FMA NAV BLUE..... CHECKED

**For RNP DEPT/ RNP AR DEPT*

***For RNP AR DEPT both GPS must be NAV*

TAKEOFF RWY.....____CONFIRM (BOTH)
CABIN CREW..... ADVISED
TCAS.....TA/RA
ENG MODE SEL.....AS RQRD
PACKS.....OFF

AFTER TAKEOFF / CLIMB

LDG GEAR..... UP
FLAPS.....RETRACTED
PACKS.....ON

BARO REF..... _____SET (BOTH)

APPROACH

BRIEFING..... CONFIRMED
ECAM STATUS.....CHECKED
SEAT BELTS.....ON
MINIMUM..... _____SET (BOTH)
ENG MODE SEL .....AS RQRD
* GPS MONITOR.....ONE NAV**
* GPS PRIMARY.....CHECKED

**For RNP APCH/ RNP AR APCH*

***For RNP AR APCH both GPS must be NAV*

BARO REF..... _____SET (BOTH)

LANDING

CABIN CREW..... ADVISED
A/THR.....SPEED/OFF
AUTOBRAKE..... AS RQRD
ECAM MEMO.....LDG NO BLUE
- *LDG GEAR DN*
- *SIGNS ON*
- *CABIN READY* ⊲
- *SPLRS ARM*
- *FLAPS SET*

AFTER LANDING (IN SILENCE)

SPOILERS..... DISARMED
RADAR.....OFF/STBY
PREDICTIVE WINDSHEAR SYSTEM..... OFF
ENG MODE SEL .....NORM
FLAPS.....RETRACT
APU.....START
Consider ONE ENGINE TAXI

PARKING

APU BLEED.....AS RQRD
Y ELEC PUMP.....OFF
ENGINES.....OFF
SEAT BELTS.....OFF
EXT LT .....AS RQRD
FUEL PUMPS.....OFF
PARK BRK and CHOCKS.....AS RQRD
Consider HEAVY RAIN

SECURING THE AIRCRAFT

ADIRS .....OFF
OXYGEN.....OFF
APU BLEED.....OFF
EMER EXIT LT .....OFF
SIGNS.....OFF
APU AND BAT .....AS RQRD
Consider COLD WEATHER

EMERGENCY EVACUATION

AIRCRAFT/PARKING BRK..... STOP/ON
ATC (VHF 1).....NOTIFY
CABIN CREW (PA).....ALERT
ΔP (only if MAN CAB PR has been used).....CHECK ZERO
If not zero, MODE selector on MAN, V/S CTL FULL UP.
ENG MASTERS (ALL).....OFF
FIRE Pushbuttons (ALL : ENG and APU).....PUSH
AGENTS (ENG and APU).....AS RQRD

- **If evacuation required:**
  EVACUATION.....INITIATE
- **If evacuation not required:**
  CABIN CREW and PASSENGERS (PA)..... NOTIFY

TAKEOFF BRIEFING

MISC	A/C type and model & technical status OEB's NOTAM Weather @ RWY conditions LVP (Low Visibility Procedures), if applicable Use of ENG / Wing Anti Ice ENG Start Procedure Pushback & Expected Taxi Clearance Use of Radar & Use of Packs for Takeoff
INIT A&B	Init A Block Fuel / Estimated TOW / Extra time at destination
PERF	TO RWY TO CONF FLEX / TOGA & V1, VR, V2 TRANS ALT & THR RED ACC Altitude
FPLAN	Charts (Charts Number, Issue Date and MSA) Minimum Safe Altitude & First Assigned FL Flight Plan description RAD NAV
ABN	Abnormal Operations Before V1 - CM1 BRIEFING After V1 - PF BRIEFING (EOSID / CFIT)

APPROACH BRIEFING

MISC	A/C type and model & technical status NOTAM
WX	CFIT (TERR ON ND use) Acessibility
FUEL	Extra Fuel
DESC	Charts (Chart Number, Issue Date) MORA, STAR, MSA Altitude and speed constrains
HOLD	Entry in holding pattern & MHA MAX speed
APPR	Approach type Altitude and FAF identification Glide path MDA / DH Missed approach procedure Alternate considerations
LDG	RWY data / LDG PERF consideration vs. RWY data Tail strike awareness Use of autobrake & use of reversers Expected taxi route/ One Engine Taxi/ APU Start delay
RADIOS	RAD NAV