



SERVICE INFORMATION LETTER

SIL N° **S-139-21-001**
 S-189-21-001
 S-169-21-001

DATE: **June 7, 2021**

REV.: /

To: Leonardo Helicopters products
 Owners / Operators

SUBJECT: **New electronic format for Operational Technical Publications**

Helicopters Affected: AW139, AW169, AW189

Dear Customer,

Leonardo Helicopters (LH) is pleased to inform you that a new set of PDF files for each AW139/AW169/AW189 Operational Technical Publications, namely the Rotorcraft Flight Manual (RFM), the Quick Reference Handbook (QRH) and the Pilot's Guide (PG), is now available on the *Leonardo Customer Portal, My Publications* section.


These files represent the electronic and interactive copy of the corresponding paper version, including:

- Record of Temporary Revisions and related Temporary Revisions pages (if present and active).
- "Color pages", i.e. pages approved by certification authorities other than EASA, already assembled in accordance with the instructions given within the applicable List of Effective Pages (LOEP). In case the LOEP requires to replace specific EASA pages with the color pages, only the front (or the back) of the involved RFM pages are highlighted with a color background, specific for each Authority, to easily identify which are the dedicated ones.

In order to improve the interactive navigation through the Operational Technical Publications content, several features have been introduced, as described in the Annex to this SIL.

New electronic format for Operational Technical Publications

Should you need any additional information, please do not hesitate to refer to the point of contact provided with the Customer Support & Training Worldwide Directory, available on Leonardo Customer Portal at this [link](#).



Giovanni Cecchelli
Leonardo Helicopters
Vice President
Customer Support & Services – Italy

ANNEX – OPERATIONAL TECHNICAL PUBLICATIONS IMPROVEMENTS

In order to improve the navigation of Operational Technical Publications content, the following features have been introduced.

- Active **Bookmarks** for each Section of RFM and PG and for each RFM Supplement included within Section 5 (see Figure 1).

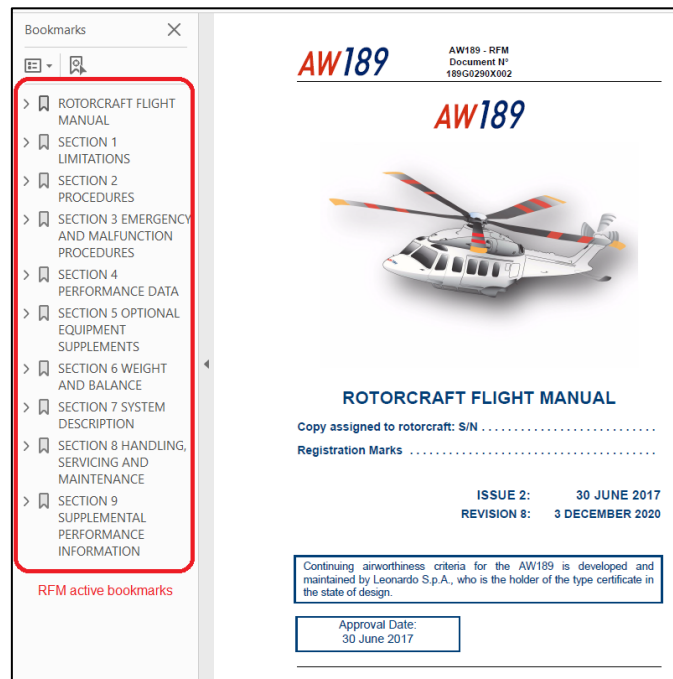


Figure 1 – RFM active bookmarks

- **Hyperlinks** within “Table of contents” for any Section of each Operational Technical Publication, including RFM Supplement (see Figure 2).

New electronic format for Operational Technical Publications

AW139		AW139 - RFM - 4D Document N° 139G0290X002	Supplement 17 External and Internal Public Address System
SUPPLEMENT 17 EXTERNAL AND INTERNAL PUBLIC ADDRESS SYSTEM			
TABLE OF CONTENTS			
			Page
GENERAL INFORMATION			S17-1
SECTION 1 - LIMITATIONS			S17-3
WEIGHT AND CG LIMITATIONS			S17-3
EXTERNAL SPEAKER LIMITATIONS			S17-3
MISCELLANEOUS LIMITATIONS			S17-3
SECTION 2 - NORMAL PROCEDURES			S17-3
EXTERNAL PRE-FLIGHT CHECKS			S17-3
IN FLIGHT			S17-4
SECTION 3 - EMERGENCY AND MALFUNCTION PROCEDURES			S17-6
SECTION 4 - PERFORMANCE DATA			S17-6
LIST OF ILLUSTRATIONS			
			Page
Figure 1	CAT AA21 PA Control Panel		S17-2
Figure 2	CAT LCS22-003N PA Control Panel		S17-2
Figure 3	CS AV 900 Audio Panel		S17-2A
Figure 4	P/N 4G2350F02111 Loud Speaker Inclination		S17-2A
Active hyperlinks			
E.A.S.A. Approved Rev. 25		Page S17-iii	

Supplement 17		AW139 - RFM - 4D Document N° 139G0290X002	AW139
External and Internal Public Address System			
1. Control panel WAIL/YELP	— Select OFF switch		
2. MIC PA button on pilot/copilot	— De-select. Confirm MIC PA ICS panel and AUD PA lights extinguished.		
3. Control panel EXT/INT switch	— Select INT.		
SECTION 3 - EMERGENCY AND MALFUNCTION PROCEDURES			
No Change.			
SECTION 4 - PERFORMANCE DATA			
No Change.			
Page S17-6		E.A.S.A. Approved Rev. 15	

Figure 2 – Table of Contents hyperlinks

▪ **Hyperlinks within “List Of Figures” and “List Of Tables”** (see Figure 3).

Supplement 4		AW169 - RFM Document N° 169F0290X001	AW169
CAT A Operations General			
LIST OF FIGURES			
Figure			Page
Figure S4-1	CAT A Temperature and Altitude Limitations up to 4600 kg		1-7
Figure S4-2	CAT A Temperature and Altitude Limitations for weight above 4600 kg		1-8
Figure S4-3	Clear Area Engine Failure Distances		1-12
Figure S4-4	Clear Area Engine Failure Distances 4000 kg		1-13
Figure S4-5	Clear Area Engine Failure Distances Weight 3700 kg		1-14
Figure S4-6	Correction Table for Installed Kits		1-18
Figure S4-7	Gradient Reduction for PATH 1		1-19
Figure S4-8	Gradient to Recover Minimum Performance for PATH 1		1-20
Figure S4-9	Gradient Reduction PATH 2		1-21
Figure S4-10	Gradient to Recover Minimum Performance for PATH 2		1-22
Figure S4-11	Example 1 Kit Correction Table		1-23
Figure S4-12	Example 2 Kit Correction Table		1-24
Figure S4-13	Kit Correction Table (blank)		1-25
Figure S4-14	Effect of Turn on PATH 2		1-26
Figure S4-15	PATH 2 Gradient, Continuous OEI Power - Gross Weight 3200 kg		1-29
Figure S4-16	PATH 2 Gradient, Continuous OEI Power - Gross Weight 3400 kg		1-30
Figure S4-17	PATH 2 Gradient, Continuous OEI Power - Gross Weight 3600 kg		1-31
Figure S4-18	PATH 2 Gradient, Continuous OEI Power - Gross Weight 3800 kg		1-32
Figure S4-19	PATH 2 Gradient, Continuous OEI Power - Gross Weight 4000 kg		1-33
Figure S4-20	PATH 2 Gradient, Continuous OEI Power - Gross Weight 4200 kg		1-34
Figure S4-21	PATH 2 Gradient, Continuous OEI Power - Gross Weight 4400 kg		1-35
Figure S4-22	PATH 2 Gradient, Continuous OEI Power - Gross Weight 4600 kg		1-36
Figure S4-23	PATH 2 Gradient, Continuous OEI Power - Gross Weight 4800 kg		1-37
Figure S4-24	PATH 2 Gradient, Continuous OEI Power - Gross Weight 5000 kg - EAPS OFF/ON		1-38
Figure S4-25	PATH 2 Gradient, Continuous OEI Power - Gross Weight 5200 kg - EAPS OFF/ON		1-39
Active hyperlinks			
Page S4-ii Issue 2 Rev. 3		Applicable to Avionic Phase 3.0 and later	

Supplement 4		AW169 - RFM Document N° 169F0290X001	AW169
CAT A Operations General			
TAKE OFF FLIGHT PATH 2 CONTINUOUS OEI			
ROTOR SPEED: 103% Vy: 75 KIAS DECREASE 1kt EACH 1000ft ABOVE 10000ft Hg			
Figure S4-22 PATH 2 Gradient, Continuous OEI Power - Gross Weight 4600 kg			
Page S4-36 Issue 2 Rev. 10		Approved	

Figure 3 – List of Figures hyperlinks

New electronic format for Operational Technical Publications

- Hyperlinks within the cross-references from text to specific paragraphs, figures and tables (see Figure 4).

AW169
AW169 - RFM
Document N°
169F0290X001
Section 2
Normal Procedures

Safety considerations

Auto HOV operations are safely achievable considering the availability to the pilot of two different "safety barriers":

- ON GROUND/IN FLIGHT ALIGNMENT PROCEDURES
- Auto Hover Protection mechanism

Therefore in case of initial incipient degradation of Auto HOV performance the pilot shall perform the appropriate ALIGNMENT PROCEDURE to avoid the intervention of AHP protection.

Auto HOV Operations - Procedures

- ON GROUND/IN FLIGHT ALIGNMENT PROCEDURE: execute immediately before entering into hover.
- HOV mode: engage and operate normally.
- PFDs HSI Hover format: monitor HOV groundspeed datum hold performance.

If during prolonged Auto HOV Operations the AHP mechanism activates (EXCESSIVE DEVIATION chevrons displayed on PFD) or **HDG** caption on PFD displays, fly-away and repeat IN FLIGHT ALIGNMENT PROCEDURE. In case the pilot elects to fly-away using TU Mode, WLVL option is recommended (second press of TU pushbutton on collective grip).

Availability of AFCS Auto Hover mode is detailed in Table 2-5, HMI degradation is detailed in [Figure 2-17](#).

Table 2-5 Heading drift impact on display information and mode availability with TD, TDH, HOV and TU

AFCS Mode	Impacted display information	Not Impacted display information	Mode availability
TD	- HSI orientation - Maps orientation	- Forward flight track w.r.t. geographical reference system (North-East)	Available
TDH	- HSI orientation - Groundspeed vector orientation with respect to helicopter longitudinal and lateral axes.	- Groundspeed vector orientation w.r.t. geographical reference system (North-East) - Groundspeed vector magnitude.	Available if HDG caption is not displayed on HSI

Approved Issue 2 Page 2-54Q
Applicable to Avionic Phase 6.0 and later Rev. 14



Section 2
Normal Procedures
AW169 - RFM
Document N°
169F0290X001
AW169

Table 2-5 Heading drift impact on display information and mode availability with TD, TDH, HOV and TU

AFCS Mode	Impacted display information	Not Impacted display information	Mode availability
HOV	- HSI orientation - Groundspeed vector orientation with respect to helicopter longitudinal and lateral axes.	- Groundspeed vector orientation w.r.t. geographical reference system (North-East). - Groundspeed vector magnitude.	Available if HDG caption is not displayed on HSI
TU	- HSI orientation - Groundspeed vector orientation with respect to helicopter longitudinal and lateral axes.	- Groundspeed vector orientation w.r.t. geographical reference system (North-East). - Groundspeed vector magnitude.	Available if HDG caption is not displayed on HSI

Figure 2-17 PFD – HOV mode HMI degradation

Page 2-54R Issue 2
Rev. 14 Applicable to Avionic Phase 6.0 and later Approved

Figure 4 – Internal cross-references

- In the Quick Reference Handbook (QRH), a functional push button has been introduced to allow a faster navigation (see Figure 5).

AW169
AW169 - QRH
169F0290X004
Volume APS.0
1

LIMITS

- GENERAL, TYPE OF OPER, MIN CREW, CG LIMITATIONS, ENGINE, FUEL, LUBRICANTS, HYD & SYSTEM LIMITATIONS, AVIONICS & FMS LIMITATIONS, CHARTS & DIAGRAMS, RESERVED

PROCEDURE

- GENERAL FLIGHT PLANNING, EXTERNAL & INTERNAL CHECKS
- ENG PRE-START, ABORT START, DRY MOTOR & ENG START, TAXIING, PRE-TAKE OFF, TAKE-OFF CAT A/B
- IN FLIGHT PROCEDURES
- APPROACH, LANDING CAT A/B
- POST-LANDING & SHUTDOWN CHECKS
- FLIGHT MANAGEMENT SYSTEM OPERATION
- ADVISORY CAPTIONS, PFD MESSAGES
- RESERVED
- RESERVED
- DENSITY/ALTITUDE, CONVERSION CHART, HOVER PAC
- CONTROLLABILITY & HV
- HOVER CEILING, RATE OF CLIMB, WIND COMPONENT CHART

Issue 2 Lims-Norm-Perf

AW169
AW169 - QRH
169F0290X004
Volume APS.0
85

GENERAL, FLIGHT PLANNING, EXTERNAL & INTERNAL CHECKS

- GENERAL 87
- FLIGHT PLANNING 88
- CATEGORY B WEIGHT DETERMINATION 88
- GROSS WEIGHT AND CENTER OF GRAVITY 88
- COLD WEATHER OPERATION 89
- SUPPLEMENTARY PROCEDURES FOR POST-COLD SOAK START 89
- PRE-FLIGHT CHECKS 91
- DAILY PRE-FLIGHT CHECK TO BE DONE BEFORE REFUELLING 91
- CHECKS 92
- COCKPIT SAFETY CHECKS 98

Issue 2 Lims-Norm-Perf

AW169
AW169 - QRH
169F0290X004
Volume APS.0
87

NORMAL PROCEDURES

GENERAL

The normal procedures detailed hereafter are the result of extensive flight tests and experience with the AW169 aircraft. They are fundamental to ensure that the level of safety required by the design and certification process is achieved.

Note

Throughout this Section, checks marked with a large **➡** are required once every 24 hour period. All other checks are to be carried out before each flight.

Normal and standard conditions are assumed in these procedures. Pertinent data in other sections is referenced where applicable.

Capital letters are used in the procedures to indicate the labelling of switches, selections to be made or caution/warning messages.

The minimum and maximum limits, and the normal and cautionary operating ranges are indicated on the PFD and MFD displays. Refer to Section 1 for details on operating limitations.

Each time an operating limitation is exceeded, an appropriate entry must be made in the log book (helicopter, engine, etc.). The entry shall state which limit was exceeded, duration, the extreme value attained, and any additional information essential in determining the maintenance action required.

EXTINT CHECKS

Issue 2 Lims-Norm-Perf

AW169
AW169 - QRH
169F0290X004
Volume APS.0
1

LIMITS

- GENERAL, TYPE OF OPER, MIN CREW, CG LIMITATIONS, ENGINE, FUEL, LUBRICANTS, HYD & SYSTEM LIMITATIONS, AVIONICS & FMS LIMITATIONS, CHARTS & DIAGRAMS, RESERVED

PROCEDURE

- GENERAL FLIGHT PLANNING, EXTERNAL & INTERNAL CHECKS
- ENG PRE-START, ABORT START, DRY MOTOR & ENG START, TAXIING, PRE-TAKE OFF, TAKE-OFF CAT A/B
- IN FLIGHT PROCEDURES
- APPROACH, LANDING CAT A/B
- POST-LANDING & SHUTDOWN CHECKS
- FLIGHT MANAGEMENT SYSTEM OPERATION
- ADVISORY CAPTIONS, PFD MESSAGES
- RESERVED
- RESERVED
- DENSITY/ALTITUDE, CONVERSION CHART, HOVER PAC
- CONTROLLABILITY & HV
- HOVER CEILING, RATE OF CLIMB, WIND COMPONENT CHART

Issue 2 Lims-Norm-Perf

Figure 5 – QRH sections navigation

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- Clicking at the bottom of the first page of “**Emergency-Malfunctions**” section brings you to the first page of “**Limitations-Normal-Performance**” section (see Figure 6).

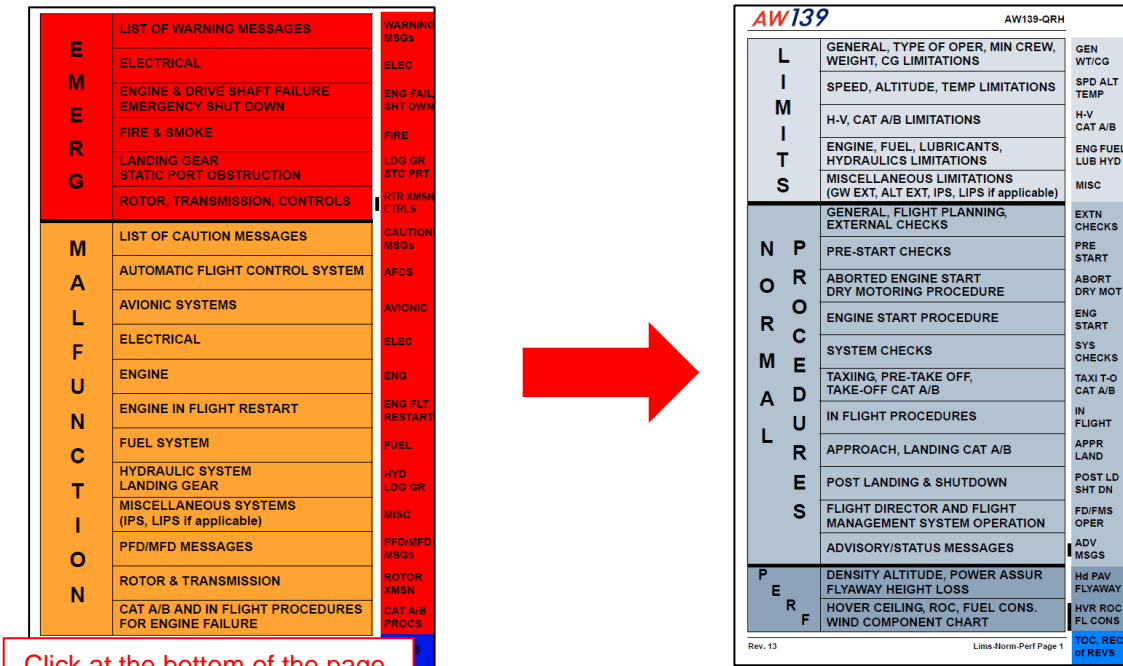


Figure 6 – navigation between QRH sections first pages (from Emerg-Malfunc to Lims-Norm-Perf)

- Clicking at the bottom of the first page of “**Limitations-Normal-Performance**” section brings you to the first page of “**Emergency-Malfunctions**” section (see Figure 7).

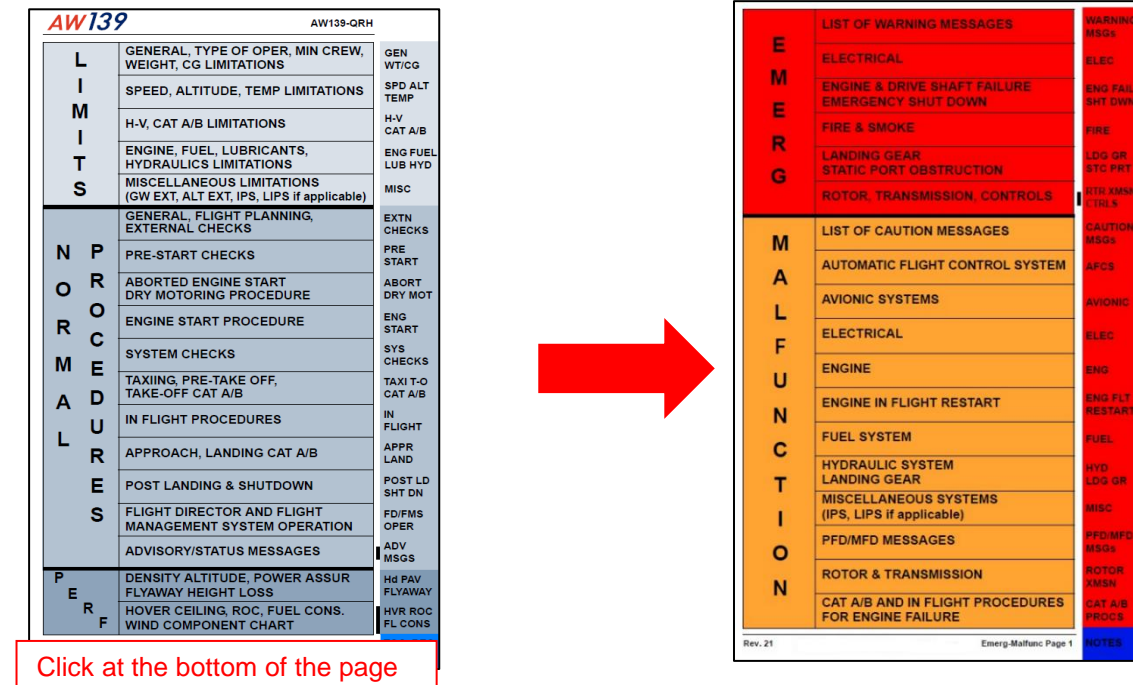


Figure 7 – navigation between QRH sections first pages (from Lims-Norm-Perf to Emerg-Malfunc)

New electronic format for Operational Technical Publications

- Clicking at the bottom of the each page of “Emergency-Malfunctions” section brings you to the first page of “Limitations-Normal-Performance” section (see Figure 8);

FIRE

In the event of smoke or fire, prepare to land the aircraft without delay while completing the applicable emergency procedures.

ENGINE BAY FIRE (GROUND)

1(2) ENG FIRE + Audio Tone and Voice Warning

- Confirm on ECL engine FIRE light ON

On affected engine

- ENG MODE switch to IDLE
- Confirm engine FIRE
- ECL to OFF
- HEATER SOV switches CLOSE and COND/HTR switch OFF (if fitted)
- LIR FIRE/ARM guard and press illuminated pushbutton
- Set FIRE EXTING switch to BTL1
- ENG MODE switch to OFF
- Fuel PUMP OFF
- FUEL switch OFF
- XFEEED CLOSED

If fire warning clears If fire warning persists

- Set FIRE EXTING switch to BTL2

- Carry out EMERGENCY/POST CRASH SHUTDOWN procedure page 20

CAUTION

In case of a subsequent fire in the other engine bay the initial ARM 1(2) pushbutton must be deselected to allow operation of the ARM 2(1) pushbutton.

Click at the bottom of the page

AW139		AW139-QRH
LIMITS	GENERAL, TYPE OF OPER, MIN CREW, WEIGHT, CG LIMITATIONS	GEN WT/CG
	SPEED, ALTITUDE, TEMP LIMITATIONS	SPD ALT TEMP
	H-V, CAT A/B LIMITATIONS	H-V CAT A/B
	ENGINE, FUEL, LUBRICANTS, HYDRAULICS LIMITATIONS	ENG FUEL LUB HYD
	MISCELLANEOUS LIMITATIONS (GW EXT, ALT EXT, IPS, LIPS if applicable)	MISC
PROCEDURES	GENERAL, FLIGHT PLANNING, EXTERNAL CHECKS	EXTN CHECKS
	PRE-START CHECKS	PRE START
	ABORTED ENGINE START DRY MOTORING PROCEDURE	ABORT DRY MOT
	ENGINE START PROCEDURE	ENG START
	SYSTEM CHECKS	SYS CHECKS
	TAXIING, PRE-TAKE OFF, TAKE-OFF CAT A/B	TAXI T-O CAT A/B
	IN FLIGHT PROCEDURES	IN FLIGHT
	APPROACH, LANDING CAT A/B	APPR LAND
	POST LANDING & SHUTDOWN	POST LD SHT DN
	FLIGHT DIRECTOR AND FLIGHT MANAGEMENT SYSTEM OPERATION	FD/FMS OPER
ADVISORY/STATUS MESSAGES	ADV MSGS	
PERF	DENSITY ALTITUDE, POWER ASSUR FLYAWAY HEIGHT LOSS	Hd PAV FLYAWAY
	HOVER CEILING, ROC, FUEL CONS. WIND COMPONENT CHART	HVR ROC FL CONS
		TOC, REC OF REVS

Rev. 13 Lims-Norm-Perf Page 1

Figure 8 – navigation between QRH different sections (from Emerg-Malfunc to Lims-Norm-Perf)

- Clicking at the bottom of the each page of “Limitations-Normal-Performance” section brings you to the first page of “Emergency-Malfunctions” section (see Figure 9).

AW139 AW139-QRH

WIND SPEED LIMITATIONS FOR ROTOR STARTING & STOPPING

Maximum wind speed 60 knots (30 m/s)

SPD ALT TEMP

Note

During rotor starting and stopping the high crosswind (greater than 30 kts (15 m/s)), lateral cyclic movement up to 50mm (2 inches) into the direction of the wind may be used to counteract any crosswind rolling tendency at higher rotor speeds.

Note

Actual windspeed values must be recorded in the helicopter log book for all rotor starting and stopping with windspeeds above 33 kts (17 m/s).

ALTITUDE LIMITATIONS

Maximum operating altitude See Figure 1-3

Minimum operating altitude See Figure 1-3

Maximum CAT B Take-Off and Landing altitude See Figure 1-3

Maximum altitude for CAT A Heliport Vertical Take-Off Procedure

TDP 35 ft 14000 ft (4300 m) Hp of Hd whichever comes first

TDP 36 ft to 70 ft 7000 ft (2100 m) Hp of Hd whichever comes first

Maximum altitude for CAT A Short Field, Back Up and Clear Area Take-Off Procedures 14000 ft (4300 m) Hp of Hd whichever comes first

Maximum altitude for CAT A Heliport, Short Field or Clear Area Landing Procedures 14000 ft (4300 m) Hp of Hd whichever comes first

Maximum Altitude for CAT A Confined Area Take Off and Landing 10000 ft (3000 m) Hp of Hd whichever comes first

Maximum Altitude for CAT A Offshore Helideck Take Off and Landing 5000 ft (1500 m) Hp of Hd whichever comes first

Maximum Altitude for CAT A Enhanced Offshore Helideck Take-Off 1000 ft (300 m) Hp

AMBIENT AIR TEMPERATURE LIMITATIONS (OAT)

Minimum temperature for ground starting -40°C

Maximum and minimum air temperature limitations See Figure 1-3

MANOEUVRING LIMITATIONS

Aerobatic manoeuvres are prohibited.

ICING LIMITATIONS

Flight into known icing conditions or freezing rain is prohibited. (If fitted and functioning refer to Icing Protection System or Limited Icing Protection System)

Click at the bottom of the page

EMERG	LIST OF WARNING MESSAGES	WARNING MSGs
	ELECTRICAL	ELEC
	ENGINE & DRIVE SHAFT FAILURE EMERGENCY SHUT DOWN	ENG FAIL SHT DWN
	FIRE & SMOKE	FIRE
	LANDING GEAR STATIC PORT OBSTRUCTION	LDG GR STC PRT
	ROTOR, TRANSMISSION, CONTROLS	RTR XMSN CTRLS
MALFUN	LIST OF CAUTION MESSAGES	CAUTION MSGs
	AUTOMATIC FLIGHT CONTROL SYSTEM	AFCS
	AVIONIC SYSTEMS	AVIONIC
	ELECTRICAL	ELEC
	ENGINE	ENG
	ENGINE IN FLIGHT RESTART	ENG FLT RESTART
	FUEL SYSTEM	FUEL
	HYDRAULIC SYSTEM LANDING GEAR	HYD LDG GR
	MISCELLANEOUS SYSTEMS (IPS, LIPS if applicable)	MISC
	PFDF/MFD MESSAGES	PFDF/MFD MSGs
ROTOR & TRANSMISSION	ROTOR XMSN	
CAT A/B AND IN FLIGHT PROCEDURES FOR ENGINE FAILURE	CAT A/B PROCs	

Rev. 21 Emerg-Malfunc Page 1

Figure 9 – navigation between QRH different sections (from Lims-Norm-Perf to Emerg-Malfunc)