KAAN HAVACILIK SANAYİ VE TİC. A.Ş.

El Kitabı : OPERATIONS MANUAL PART B(LEONARDO AW139)
Revizyon No : 14
Revizyon Tarihi : 26.11.2025

SİVİL HAVACILIK GENEL MÜDÜRLÜĞÜ

DIRECTORATE GENERAL OF CIVIL AVIATION

ONAY SERTİFİKASI
APPROVAL CERTIFICATE

OPERATIONS MANUAL PART B

KAAN HAVACILIK SANAYİ VE TİC. A.Ş.

KAAN HAVACILIK

Revision Date : 26.11.2025

Revision No : 14

TYPE(S) OF AIRCRAFT
Leonardo / AW139

This Operations Manual (Part B / Aircraft Operating Matters - Type Related) has been evaluated and inspected in accordance with SHT-OPS Instructions and approved by the Turkish DGCA.

Approved By:

Turgay SENGER
Flight Standards Coordinator

Approval Date

27/11/2025

T.C. ULAŞTIRMA VE ALTYAPI BAKANLIĞI

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REVISION HIGHLIGHTS

Revision No:4

Air-OPS HOFO requirements added to related articles according to specific approval OFFSHORE request.

Revision No:5

0.2.6 Temp Rev page added, 6.9.4 TC-HKU, TC-HKI Offshore Dry operating weight, 6.9.5 Sample Mass and Balance Sheet, 7.1 Added SSCL Short Checklist to appendices

Revision No:6

00.02.01 Person(s) Responsible for the issuance and insertion of amendments and revisions, 00.02.02 Amendments and Revisions with insertion dates and effective dates, 00.02.06 Temporary Revisions, 00.02.07 Distribution System for the manuals, amendments and revisions, 01.01.03 Types of Operation, 01.01.06 Speed Limitations, 01.01.10.11 Avionic, 01.01.10.12 Miscellaneous, 03.01.06 System Failures, 06.09.04 Dry Operating Mass and corresponding centre of gravity (CG) or index, 06.09.05 Sample Mass and Balance Sheet, 07.01 Helicopter Systems, related controls and indications and operating instructions (consideration should be given to use the ATA number system when allocating chapters and numbers), 10.07 Survival Equipment

Revision No:7

00.01.03 A list and brief description of the various parts, their contents, applicability and use, 00.02.01 Person(s) Responsible for the issuance and insertion of amendments and revisions, 00.02.02 Amendments and Revisions with insertion dates and effective dates, 00.02.06 Temporary Revisions, 00.02.07 Distribution System for the manuals, amendments and revisions, 02.01 Normal Procedures , 02.01.00 Checklist Handling, 02.01.01 Pre-flight, 02.01.02 Starting, 02.01.03 Systems Check, 02.01.04 FMS Setup, 02.01.05 Before Take-off / Take-off Briefing, 02.01.06 Power Assurance Check (PAC), 02.01.07 Taxi / Take-off (Cat-A & B) and Climb, 02.01.08 Noise Abatement, 02.01.09 In-flight / Cruise / Descent, 02.01.10 Approach / Landing preparation and Briefing, 02.01.11 Go-Around, 02.01.12 Normal Landing, 02.01.13 Shutdown / Post-flight Check, 02.02 Crew Communication, 03.01.06 System Failures, 03.01.10 Windshear, 03.01.11 Autorotative Landing / Ditching, 06.09.04 Dry Operating Mass and corresponding centre of gravity (CG) or index, 06.09.05 Sample Mass and Balance Sheet, 07.01 Helicopter Systems, 09.01 The CDL(s)

Revision No:8

Related to A/AW-139 RFM Rev-27 changes and New Mass and Balance numbers for helicopters;

00.01.01 A statement that the manual complies with all applicable regulations and with the terms and conditions of the applicable air operator certificate (AOC), 00.02.02 Amendments and Revisions with insertion dates and effective dates, 00.02.07 Distribution System for the manuals, amendments and revisions, 01.01.03 Types of Operation, 01.01.07 Flight Envelope(s), 01.01.10.05 Lubricant, 02.01.06 Power Assurance Check (PAC), 02.01.08 Noise Abatement, 06.09.04 Dry Operating Mass and corresponding centre of gravity (CG) or index, 07.01 Helicopter Systems, related controls and indications and operating instructions (consideration should be given to use the ATA number system when allocating chapters and numbers)

Revision No:9

EFB related revisions;
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Revision No:10

Related to TC-HKB join to fleet and EFB revisions:

00.02.02 Amendments and Revisions with insertion dates and effective dates, 02.03 EFB Normal Procedures, 03.02 EFB Abnormal Procedures, 03.03 EFB Emergency Procedures , 06.09.04 Dry Operating Mass and corresponding centre of

gravity (CG) or index

Revision No:11

In accordance with TC-HZG getting into fleet :

00.01.01 A statement that the manual complies with all applicable regulations and with the terms and conditions of the applicable air operator certificate (AOC), 00.02.01 Person(s) Responsible for the issuance and insertion of amendments and revisions, 00.02.02 Amendments and Revisions with insertion dates and effective dates, 00.02.05 Annotation of Changes (in the text and, as far as practicable, on charts and diagrams), 00.02.06 Temporary Revisions, 00.02.07 Distribution System for the manuals, amendments and revisions, 01.01.02 Passenger Seating Configuration for each aircraft type including a pictorial presentation, 01.01.05 Mass and Centre of Gravity (CG), 01.01.06 Speed Limitations, 01.01.07 Flight Envelope(s), 01.01.08 Wind Limits, 01.01.09 Performance Limitations, 01.01.10.11 Avionic, 01.01.10.12 Miscellaneous, 03.01.06 System Failures, 06.09.04 Dry Operating Mass and corresponding centre of gravity (CG) or index, 06.09.05 Sample Mass and Balance Sheet, 07.01 Helicopter Systems, related controls and indications and operating instructions (consideration should be given to use the ATA number system when allocating chapters and numbers)

Revision No:12

In accordance with TC-HKU out of fleet and TC-HZG's new weighing numbers:

00.01.01 Statement that the manual complies with all applicable regulations and with the terms and conditions of the applicable air operator certificate (AOC), 00.02.02 Amendments and Revisions with insertion dates and effective dates, 06.09.04 Dry Operating Mass and corresponding Centre of Gravity (CG) or index, 06.09.05 Sample Mass and Balance Sheet(s), 07.01 Helicopter Systems, related controls and indications and operating instructions (consideration should be given to use the ATA number system when allocating chapters and numbers)

Revision No:13

00.01.01 Statement that the manual complies with all applicable regulations and with the terms and conditions of the applicable air operator certificate (AOC), 00.02.02 Amendments and Revisions with insertion dates and effective dates, 06.09.00 WEIGHING of the AIRCRAFT (new procedure)

Revision No:14

TC-HKT is out of fleet and TC-HZG's new weighed MB numbers :
00.01.01 Statement that the manual complies with all applicable regulations and with the terms and conditions of the applicable air operator certificate (AOC), 00.02.02 Amendments and Revisions with insertion dates and effective dates, 06.09.04 Dry Operating Mass and corresponding Centre of Gravity (CG) or index, 06.09.05 Sample Mass and Balance Sheet(s)

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00.01-Introduction

ORO.MLR.100

(00.01.01)- Statement that the manual complies with all applicable regulations and with the terms and conditions of the applicable air operator certificate (AOC)

Revizyon No: 14 Revizyon Tarihi: 26.11.2025

ORO.MLR.100

KAAN AIR's **Leonardo AW139** Operations Manual Part B (OM PART B) document **Rev-14**, dated **26/11/2025**, EASA AIR OPS Regulation **Rev-22**, Rotorcraft Flight Manual **Rev-32** (RFM) published by Leonardo S.p.A dated **18/12/2024** are in compliance with the requirements.

This OM PART B takes into account the operational conditions of the above mentioned aircraft types/classes/variants in the operating fleet of KAAN AIR within the scope of the requirements determined by the Turkish DGCA.

Prepared By	Controlled By	Approved By
Ali Metin UZUN Flight Ops. Manager, Captain KAAN Hvcl. San. Tic. A.Ş.	Kadir ERDOGAN Quality/Comp. Mont. & Safety Mng, Captain KAAN Hvcl. San. Tic. A.Ş.	M. Kemal SULER Accountable Manager, Captain KAAN Hvcl. San. Tic. A.Ş.

(00.01.02)- Statement that the manual contains operational instructions that are to be complied with by the relevant Personnel

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

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Operations Manual contains information and instructions to enable operational personnel to perform their duties in best standards. KAAN AIR will make available this manual's procedures to operational personnel. The amendment of this manual and its procedures shall be properly controlled.

KAAN AIR will not introduce any alternative procedures to those prescribed in this manual unless needed and equivalent safety case has first been approved by Turkish DGCA.

It is accepted that these procedures do not override the necessity of complying with any new or amended regulation published by Turkish DGCA from time to time here these new or amended regulations are in conflict with these procedures.

The Turkish DGCA has been provided with a copy of the Operations Manual, and receives all amendments and revisions thereto.

The rules and regulations contained in the Operations Manual will be adhered to by the **relevant personnel** at all times; in the event of wilful or negligent disobedience to those rules and regulations the personnel concerned may become subject to disciplinary, legal or penal action. However, nothing contained in the Operations Manual will keep personnel from exercising their own best judgment during any irregularity for which the Operations Manual gives no provisions or in emergencies.

The **pilot-in-command** will, in an emergency situation that requires immediate decision and action, take any action he considers necessary under the circumstances. In such cases he may deviate from rules, operational procedures and methods in the interest of safety.

All **flight crewmembers** will have written copy of the Operations Manual in every aircraft . All **other operations personnel** will have easy access to the parts relevant to their respective duties. All **operating staff** is required to adhere to instructions laid down in this manual and any deviations should be reported, the reasons for such deviation being given.

Should any individual consider that all or any part of a procedure or instruction requires to be amended, he should notify the **Flight Operations Manager**.

(00.01.03)- List and brief description of the various parts, their contents, applicability and use

Revizyon No: 7 Revizyon Tarihi: 21.06.2020

ORO.MLR.100

The Operations Manual (OM) Part B consists of below separate chapters:

00-ADMINISTRATION AND CONTROL OF OPERATIONS MANUAL
01-LIMITATIONS
02-NORMAL PROCEDURES
03-ABNORMAL AND/OR EMERGENCY PROCEDURES
04-PERFORMANCE
05-FLIGHT PLANNING
06-MASS AND BALANCE
07-HELICOPTER SYSTEMS
08-LOADING
09-CONFIGURATION DEVIATION LIST (CDL)
10-MINIMUM EQUIPMENT LIST (MEL)
11-SURVIVAL AND EMERGENCY EQUIPMENT INCLUDING OXYGEN
12-EMERGENCY EVACUATION PROCEDURES

(00.01.04)- Explanations and Definitions of terms and words needed for the use of the manual

Refer to OM Part A 00.01.04.

00.02-System of Amendment and Revision

ORO.MLR.100

(00.02.01)- Person(s) Responsible for the issuance and insertion of amendments and revisions

Revizyon No: 11 Revizyon Tarihi: 24.06.2023
ORO.MLR.100

The Operational Manual Part B, its amendments and revisions are published and issued by the **Flight Operations Manager** and **Compliance Monitoring Manager**.

The Flight Operations Manager is responsible for its contents, and for keeping the instructions and information up-to-date of chapters. Both managers will supply the Turkish DGCA with intended amendments and revisions in advance of the effective date.

The operations manual will be published in accordance with **easy usage** and **human factors** principles. The manual will be easy reading and understanding language by operations personnel.

All KAAN AIR employees have easy access to this OM Part via web site written in chapter 00.02.07 using their personal user names and passwords. The electronic version of part in the system contains whole up to date manual in PDF file format and may be used as a master document. Individually produced printouts from any electronic version of the part is for information only.

The binders and pages will be good handling and well reading on board of helicopters. In additions, the electronic copy will be colored and easy reading by users.

Note: *When an amendment concerns any provision or procedure, which must be approved by the Turkish DGCA, such approval will have been obtained before the amendment becomes effective. Only when immediate amendments or revisions are required in the interest of safety, they may be published and applied immediately provided that any approval required has been applied for.*

All holders of the part will revise the manual at the time specified in the amendment's introduction, and record, on the Record of Revision, the insertion date, the effective date, and their name.

With each normal amendment an updated "List of Effective Pages" will be issued, which will enable the user to check whether his manual is up-to-date.

In order to identify changes, additions and deletions, a vertical line may be used to outline revised or newly published paragraphs on the pages. In addition, an introduction ("Revision Letter") may be provided, identifying the revised pages and briefly describing the reason for their revision. Personnel are required to carefully take note of the change.

The page(s) affected will be entered in the "Temporary Revision Record". Temporary revisions will be brought to the attention of the Turkish DGCA immediately and, unless limited to a defined period of time, be followed by a normal amendment as soon as practicable.

(00.02.02)- Amendments and Revisions with insertion dates and effective dates

Revizyon No: 14 Revizyon Tarihi: 26.11.2025

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Rev. No.	Date	Reason for Revision	Inserted By
Original	20.04.2011	Initial	Ertuğrul PEKER
1	11.10.2012	A119 type added	Ertuğrul PEKER
2	01.07.2013	AW139 type added	Metin YILDIZ
3	02.04.2014	Compliance of EC 965/2012	Kadir ERDOĞAN
4 Electronic	23.08.2018	Refer to Revision Highlights section	Kadir ERDOĞAN
5	15.12.2018	" "	Kadir ERDOĞAN
6	29.02.2020	" "	Kadir ERDOĞAN
7	21.06.2020	" "	Kadir ERDOĞAN
8	17.11.2021	" "	Cemil PEKDEMİR Kadir ERDOĞAN
9	15.08.2022	" " (* EFB related)	Cemil PEKDEMİR S. Emrah CANBAZGİL Kadir ERDOĞAN
10	11.01.2023	" " (* EFB related)	Cemil PEKDEMİR
11	24.06.2023	" "	Cemil PEKDEMİR
12	03.05.2024	" "	Cemil PEKDEMİR
13	23.07.2025	" "	Ali Metin UZUN
14	26.11.2025	" "	Ali Metin UZUN

(00.02.03)- Handwritten amendments and revisions are not permitted, except in situations requiring immediate amendment or revision in the interest of safety

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

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Handwritten amendments are permissible only in situations requiring immediate revision in the interest of safety; they will be initiated and put into force by a circular of the Flight Operations Manager. They will be followed by a formal amendment as soon as practicable and the Turkish DGCA will be informed immediately.

(00.02.04)- System for the Annotation of Pages or paragraphs and their effective dates

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

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Permanent changes or revisions will be noted in the Record of Revisions along with the insertion date and the effective date. The List of Effective Pages will be updated and each revised page will be accompanied by a new "Effective Date" located at the top of each page of the Operations Manual.

All text revisions will be noted by a **single black line at the left/right side (l)** of the text and red colored that has been changed or added. The revision border will be removed when the section is revised again. Only the most current revision will have the text border.

Any text that has been deleted will be referenced in the Revisions Section of this Operations Manual along with a brief explanation of the text that was removed and why.

Each holder of Operations Manual, or appropriate parts of it, shall keep it up to date with the amendments or revisions supplied by the KAAN AIR.

KAAN AIR will supply the TR DGCA with intended amendments and revisions in advance of the effective date. When the amendment concerns any part of the Operations Manual which must be approved in accordance with the regulations, this

approval will be obtained before the amendment becomes effective.

KAAN AIR will incorporate all amendments and revisions required by the regulations and the TR DGCA.

(00.02.05)- Annotation of Changes (in the text and, as far as practicable, on charts and diagrams)

Revizyon No: 11 Revizyon Tarihi: 24.06.2023

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All revisions or changes to diagram or charts will be identified by a revision bar to the right of the diagram or chart. The changes or revisions to the diagrams or charts will be noted in the Record of Revisions along with the insertion date and the effective date. The List of Effective Pages will be updated and each revised page will be accompanied by a new "Effective Date" located at the top of each page of the Operations Manual.

(00.02.06)- Temporary Revisions

Revizyon No: 11 Revizyon Tarihi: 24.06.2023

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Rev. No.	Date	Reason for Revision	Inserted By
4.01	14.12.2018	06.09.04 TC-HKU, TC-HKI Offshore Dry operating weight	Kadir ERDOĞAN
5.01	28.07.2019	06.09.04 TC-HVK, TC-HKT Dry operating weight changed, 06.09.05 Sample Mass and Balance sheet revised.	Kadir ERDOĞAN
5.02	31.07.2019	06.09.04 TC-HVK Dry operating weight changed according to new Chart C after maintenance.	Kadir ERDOĞAN
5.03	16.11.2019	00.02.07 Distribution System, 01.01.10.12 Miscellaneous, 03.01.06 System Failures, 06.09.04 Dry Operating Mass and corresponding centre of gravity (CG) or index, 06.09.05 Sample Mass and Balance Sheet, 07.01 Helicopter Systems	Kadir ERDOĞAN
6.01	11.06.2020	00.02.07 Distribution System for the manuals, amendments and revisions, 02.02 Crew Communication, 03.01.06 System Failures, 03.01.10 Windshear, 03.01.11 Autorotative Landing / Ditching; 06.09.04 Dry Operating Mass and corresponding centre of gravity (CG) or index, 06.09.05 Sample Mass and Balance Sheet, 07.01 Helicopter Systems, related controls and indications and operating instructions (consideration should be given to use the ATA number system when allocating chapters and numbers), 09.01 The CDL(s), if provided by the manufacturer, taking account of the aircraft types and variants operated including procedures to be followed when an aircraft is being dispatched under the terms of its CDL	Kadir ERDOĞAN

(00.02.07)- Distribution System for the Manuals, Amendments and Revisions

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Copy No	Distribution	Format
Original	TR DGCA	PDF
1	Flight Operations Manager	Paper Copy
2	OCC Operations Control Center	Paper Copy
3	Accountable Manager	PDF
4	Compliance Monitoring / Safety Manager	PDF
5	Crew Training Manager	PDF
6	Ground Operations / Security Manager	PDF
7	OFFSHORE Bases (Each)	Paper Copy
8	Every Helicopters in the Fleet (AW139)	Paper Copy

The operations manual shall be distributed to all pilots, operations personnel when it issued and/or revised after approval to access the operations manuals **within 15 days after approval**. All personnel can access to operations manual PDF copies at KAAN AIR's https://kaanair-depo.online/MANUALS/OPERATIONS/ website.

Flight Operations Manager and/or **Compliance Monitoring Manager** is responsible of distribution to all operations personel via https://ftl.safejets.net/ website which is notification portal has all the related operations personnel's email addresses recorded. Website will send a notification email which also has a quick link to access to attached document(s). Website also will log in a Notification Sheet/List for the personnel's access (by the way; been informed) date and time record for the further auditing purposes and as a legal proof.

All operations personnel can make a request copy of approved Operations Manual from Flight Operations Manager or Compliance Monitoring Manager when operation personnel outside of main base.

All operations manual shall be distributed with TR DGCA Approval Certificate in the 2nd page after cover. All personnel shall look at the latest approval certificate before using operations manual.

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01-LIMITATIONS

AMC3 ORO.MLR.100

(01.00)- General Information (e.g. aircraft dimensions), including a description of the units of measurement used for the operation of the aircraft type concerned and Conversion Tables

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC3 ORO.MLR.100

01.00.01 General Information and Units of Measurement

The presented Operations Manual Part B (helicopter related operations documents) is a part of the Flight Operations Manual of KAAN AIR.

All of the dimensions, performance data and other calculation documents published in this document are taken from the respective current version of RFM AW139. The calculations must be made together with the original data from this document.

01.00.02 Helicopter Type

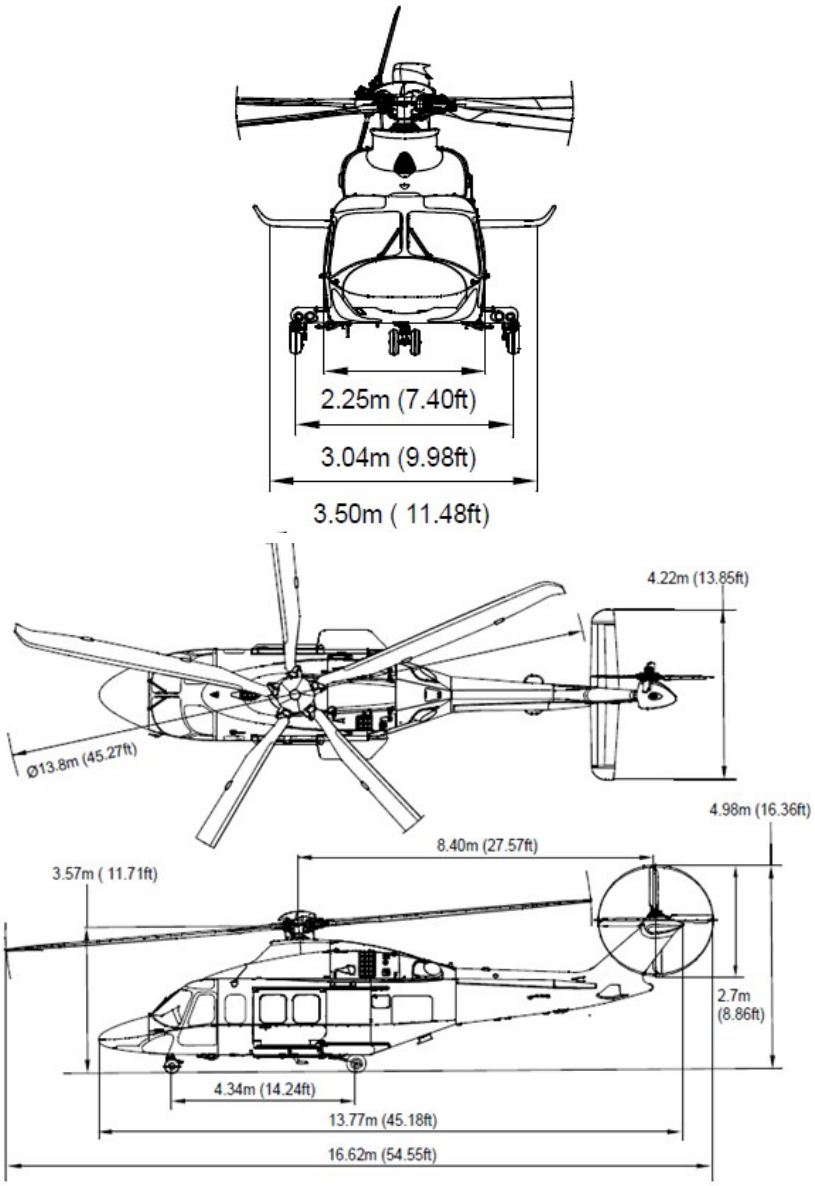
This part of the handbook is intended for the deployed helicopter:

- AW139

01.00.03 Helicopter Measurement

Calculations must be exclusively made using the measurements as given in the current Rotorcraft Flight Manual.

01.00.04 Dimensions



01.00.05 Measurement Units

The following measurement units are to be used:

- Length: Metric
- Temperature: Degrees Celsius
- Speed: Knots
- Climb & sink rate: Feet per minute
- Mass: Kilogram
- Liquid measurements: Litres, kilograms
- Air pressure: Hectopascal
- Working pressure: Bar

01.01-Certified Limitations and Applicable Operational Limitations

Revizyon No: 4 Revizyon Tarihi: 23.08.2018
AMC3 ORO.MLR.100

GENERAL
Compliance with Section 1 of RFM is mandatory.

(01.01.01)- Certification Status (e.g. EASA (supplemental) type certificate, environmental certification, etc.)

Revizyon No: 7 Revizyon Tarihi: 21.06.2020
AMC3 ORO.MLR.100

BASIS OF CERTIFICATION
This helicopter is certified by European Aviation Safety Agency (EASA) in accordance with CS 29 for Large Rotorcraft Category A and B.

Type Certificate Data Sheet (TCDS) No.: EASA.R.006 ,
can be found in the website;
https://www.easa.europa.eu/document-library/type-certificates/rotorcraft-cs-29-cs-27-cs-vlr/easar006 .

BASIS OF CERTIFICATION
according to Supplement 9 Ditching Configuration

The Emergency Flotation and Life Raft System is approved for ditching, up to Sea State 6, in accordance with CS 29.

The Emergency Flotation System P/N 3G9560F00113 and 3G9560F00212 are approved for ditching, up to Sea State 6, in accordance with CS 29 provided the following approved equipments, in accordance with the National Operation rules, are fitted:

— Life raft(s)
(Life rafts P/N 4G2560F00711/00811/1011/1012 have been approved for use by Leonardo Helicopters Company. The use of other life raft installations must be in accordance with CS 29 and must be approved)

— When Life rafts P/N 4G2560F01011/01012 are fitted the maximum number of passengers permitted in the cabin is 12.

— Survival type Emergency Locator Transmitter

— Life preservers.

(01.01.02)- Passenger Seating Configuration for each aircraft type including a Pictorial Presentation

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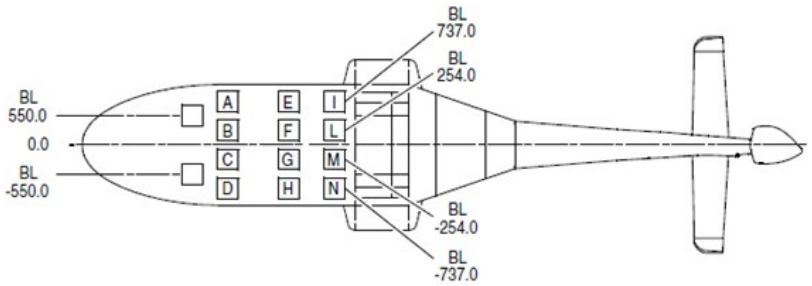
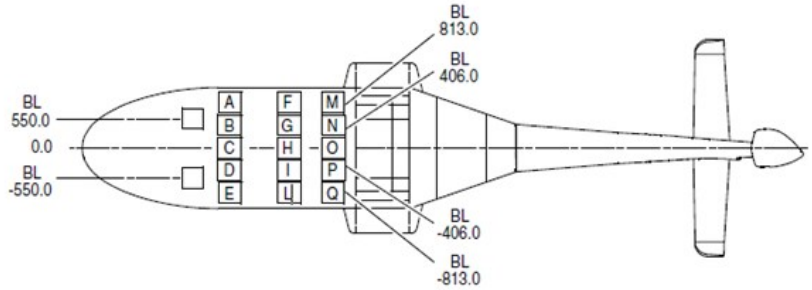
NUMBER OF OCCUPANTS
The total number of occupants, including the crew, shall not exceed:

— Low density configuration..... 14
(Air taxi and Offshore)



— High density configuration.....17



— Each occupant must have a seat and seat belt.

— The low density or high density configuration **may have a reduced number** of passenger seats installed in cabin. A **minimum of 3 seats, in at least one row, must be installed.**

— **After seat removal or installation** the new empty weight and C of G position must be determined and entered into RFM Section 6 to ensure C of G limits are not exceeded.

NUMBER OF OCCUPANTS

According to RFM Supplement 51 Take Off and Landing Altitude Extention (9 Passenger Seat Configuration

The total number of occupants in passenger cabin
shall not exceed 9

(01.01.03)- Types of Operation

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TYPES OF OPERATION

The rotorcraft is certified in Category A and B and is eligible for the following kinds of operation when the appropriate instruments and equipment required by the airworthines and/or operating rules are installed and approved and are operable in condition:

— Day and Night VFR
— IFR
— Category A Vertical/Confined Area/Back-Up Operation from Ground level or Elevated heliports (Supplement 12, 50)
— Category A Clear Area and Short Field operation from airport runways (Supplement 12, 50, 90)
— Category A Operation Offshore/Elevated Helidecks (Supplement 12, 50, 97)
— Category B Operation Up to 9 Passenger Seats (Supplement 51)
— Ditching Configurations (Supplement 9, 95)
— Night Vision Goggle Operations (Supplement 60)
— Flight in Limited Icing (Supplement 76)
— Flight in Icing (Supplement 71)
— External Load Operations (Supplement 11, 13, 41, 49, 98)

TYPE OF OPERATIONS
According to Supplement 9 - Ditching Configuration

For flight over water the helicopter must be operated in accordance with the National Operating rules. When not required by the National Operating rules the life rafts may be removed.

Note
Removal of the life rafts does not affect the operation of the Emergency Flotation System

(01.01.04)- Crew Composition

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MINIMUM FLIGHT CREW

Visual Flight Rules (VFR) Day - One pilot unless otherwise required by operating rules.
Single pilot operation is not permitted from left seat.
Visual Flight Rules (VFR) Night and Instrument Flight Rules (IFR) Day/Night - Two pilots.
For VFR Night Single Pilot Operation see Supplement 24.
For IFR Single Pilot Operation see Supplement 22.

CREW LIMITATIONS
according to Supplement 12 Category A Operations

CAT A Take-Off and Landing can be carried out from the right or left hand seat.
When Take-Off or Landing is carried out from the left hand seat minimum flight crew is 2 pilots.

CREW LIMITATIONS
According to Supplement 97 - Category A Enhanced Offshore Elevated Helideck Procedures

Minimum flight crew is 2 pilots.

(01.01.05)- Mass and Centre of Gravity (CG)

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WEIGHT

Maximum gross weight for towing or taxi ..... 6450 kg
Maximum gross weight for CAT B take-off/landing ..... 6400 kg
Refer to CAT B W.A.T Limits chart Figure 1-7
Minimum flight/rotor running gross weight..... 4400 kg

WEIGHT AND CENTER OF GRAVITY LIMITATION
According to Supplement 9 Ditching Configuration

After installation of the Emergency Flotation System the new empty weight and center of gravity position must be determined. No change to weight or CG limitations.

WEIGHT AND CENTER OF GRAVITY LIMITATIONS - WEIGHT
According to Supplement 50 Increased Gros Weight 6800 Kg

Maximum gross weight for towing..... 6450 kg
Maximum gross weight for taxiing..... 6800 kg
Maximum gross weight for CAT B Take-Off / Landing ..... 6800 kg

Note
Operation in Hover OGE at TOP is permitted for a maximum duration of 5 minutes.
Note
Weights defined in the above charts guarantee adequate controllability margins for operation within the Wind/Ground/Air speed Azimuth Envelopes Figure 1-10.
Note
Be aware that for hover operations using the TOP range and an autopilot height hold mode engaged (RHT or ALT) the PI limiting function will intervene at 106% PI, therefore, it is not recommended to use height hold for these conditions.

WEIGHT AND CENTER OF GRAVITY LIMITATIONS - WEIGHT

According to Supplement 90 Weight Extension 7000 KG

Maximum gross weight for towing..... 6450 kg
Maximum gross weight for taxiing..... **7050 kg**
Maximum gross weight for CAT B Take-Off / Landing ..... 7000 kg
Maximum gross weight for CAT A Take-Off and Landing
(Clear Area Procedure only in Supplement 12) ..... 7000 kg
Maximum gross weight for CAT A Take-Off
(Enhanced Offshore Procedure Supplement 97)..... 7000 kg
Weight limitations CAT B W.A.T. Clean Intake .....Figure 4-1
Weight Limitations CAT A Take-Off and Landing
(Clear Area Procedure only permitted from Supplement 12)
Clean Intake .....Figure 4-5
Weight Limitations CAT A Take-Off Enhanced
Offshore Procedure..... Refer Supplement 97

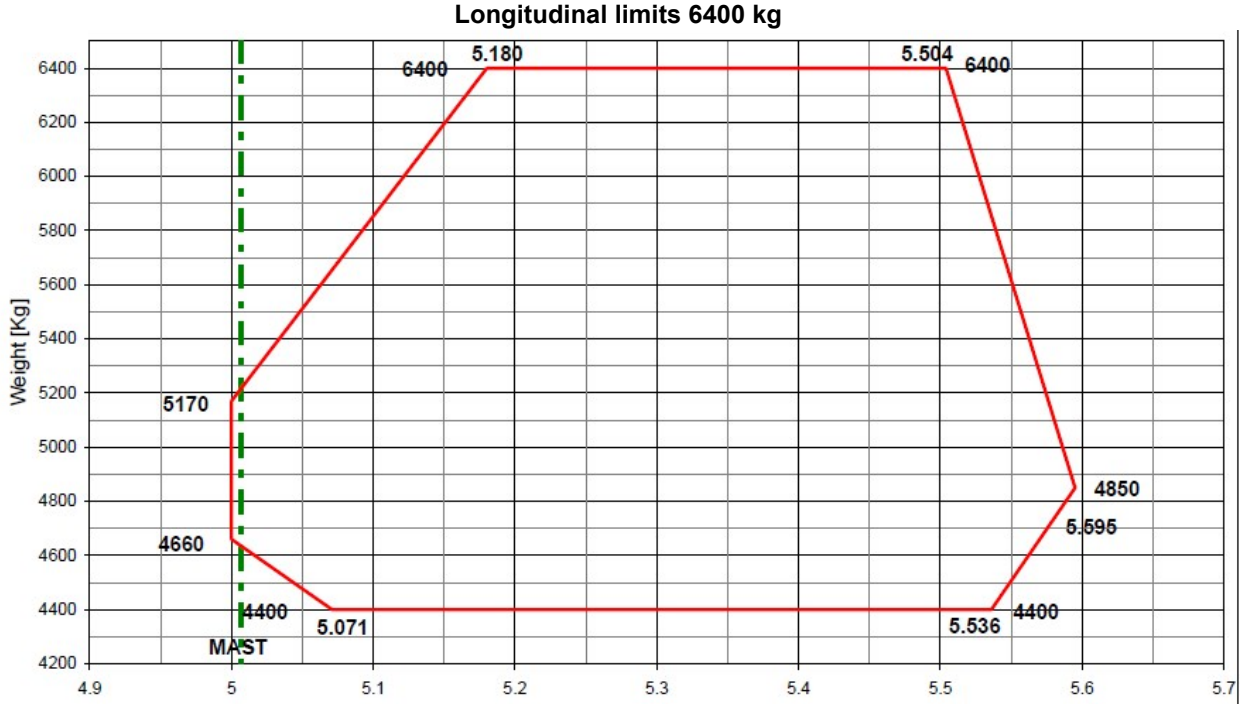
WEIGHT LIMITATIONS

According to Supplement 97 - Category A Enhanced Offshore Elevated Helideck Procedures

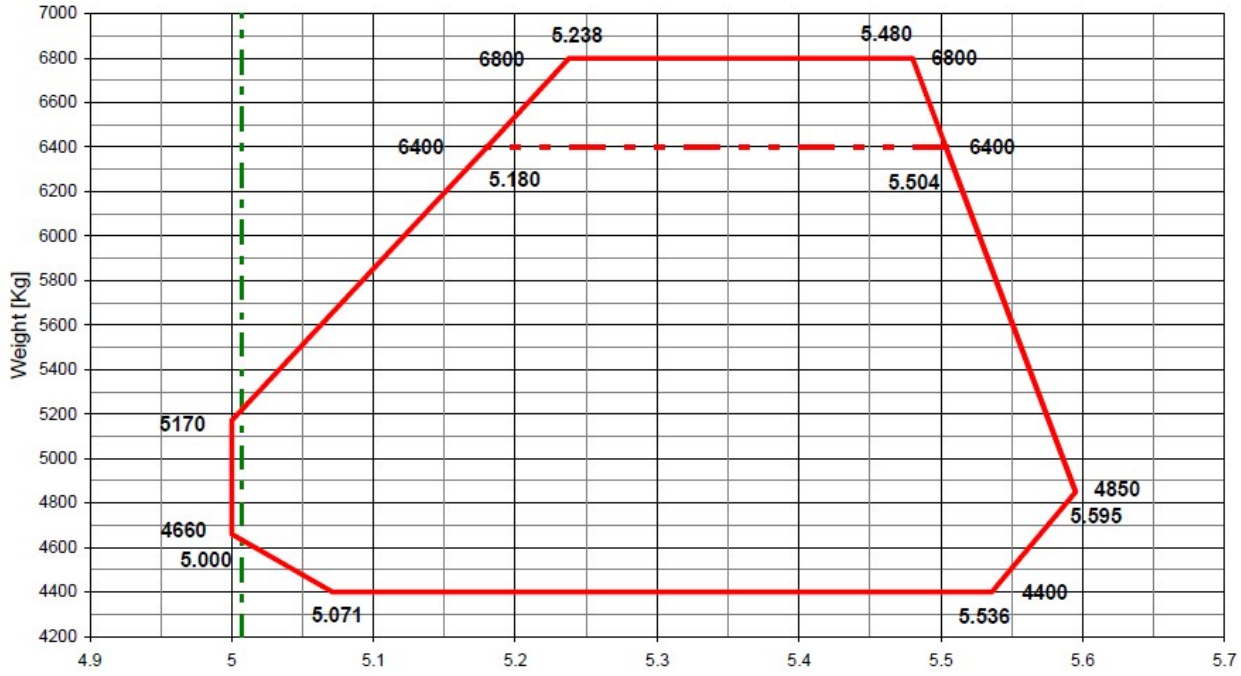
Maximum Take-Off Weight ..... 6400 kg
Maximum Take-Off Weight (aircraft configured for 6800 kg).... 6800 kg
Maximum Take-Off Weight (aircraft configured for 7000 kg).... 7000 kg

CENTER OF GRAVITY

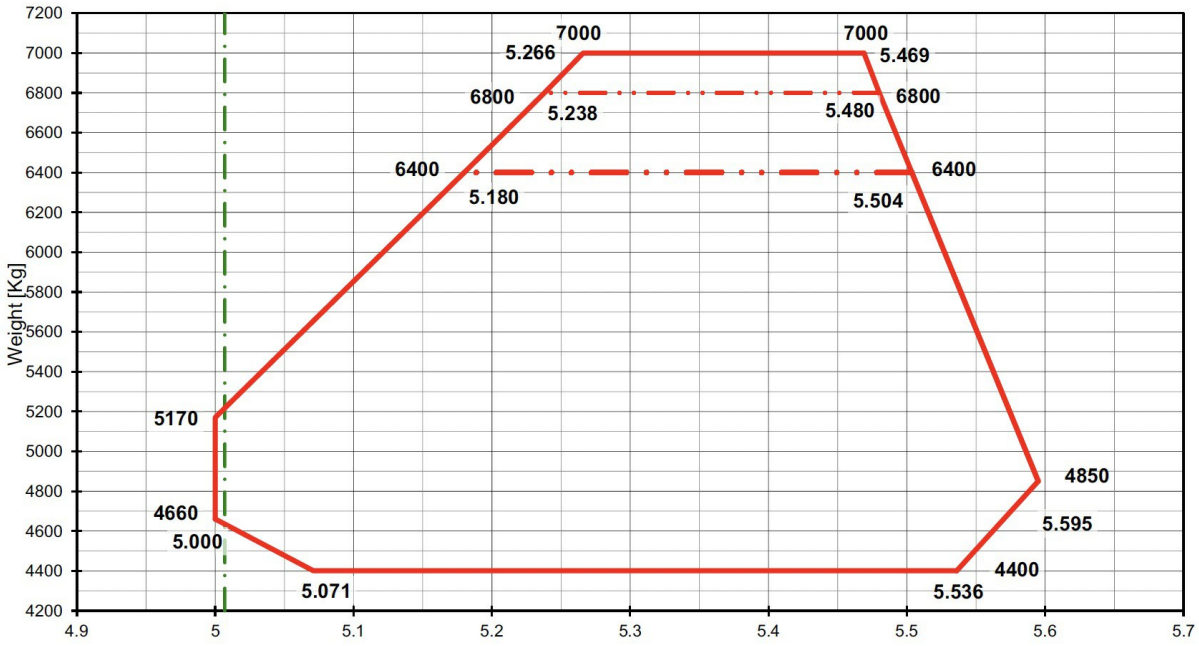
Longitudinal limits 6400 kg



Longitudinal limits 6800 kg

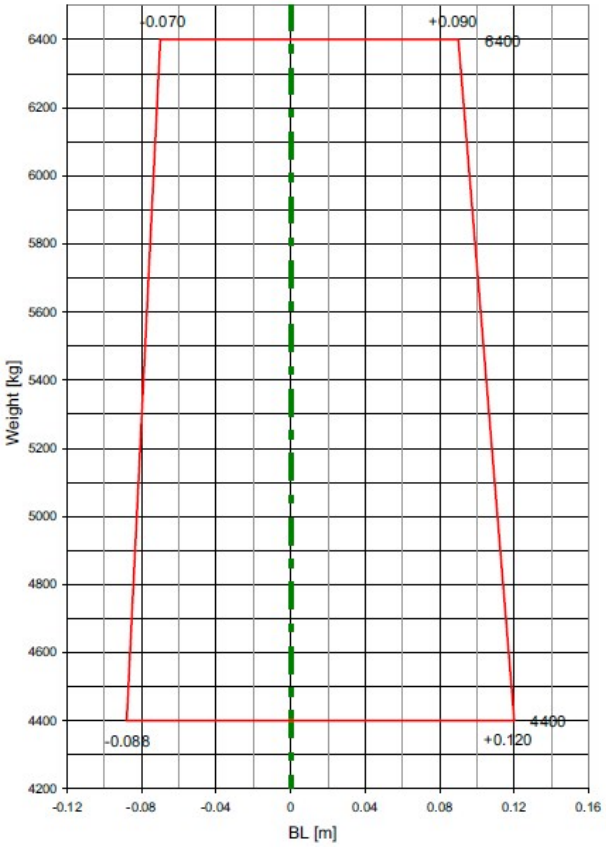


Longitudinal limits 7000 kg

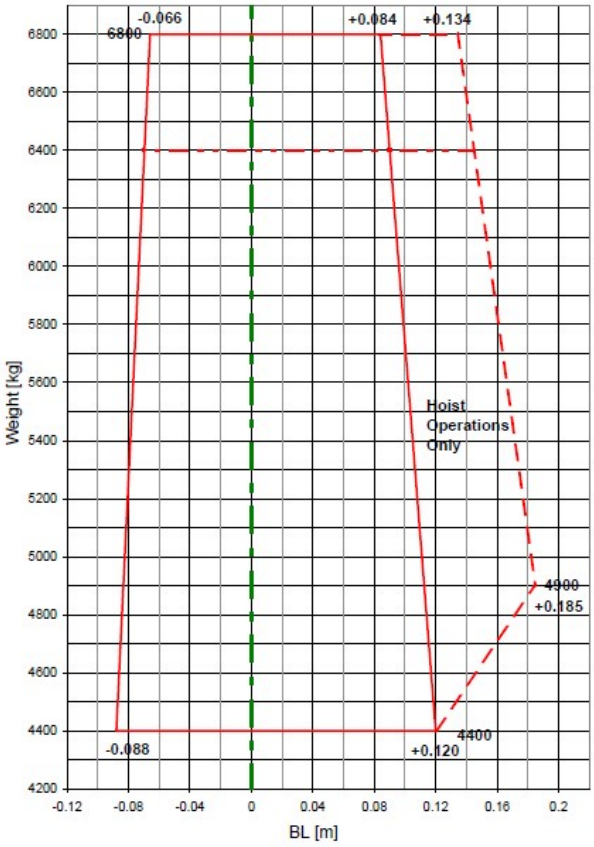

Weight [Kg]
7200
7000
6800
6600
6400
6200
6000
5800
5600
5400
5200
5000
4800
4600
4400
4200
4.9
5
5.1
5.2
5.3
5.4
5.5
5.6
5.7
7000
5.266
7000
5.469
6800
5.238
6800
5.480
6800
6400
5.180
6400
5.504
6400
5170
4850
4660
5.000
5.595
4400
5.071
5.536
4400

Lateral limits

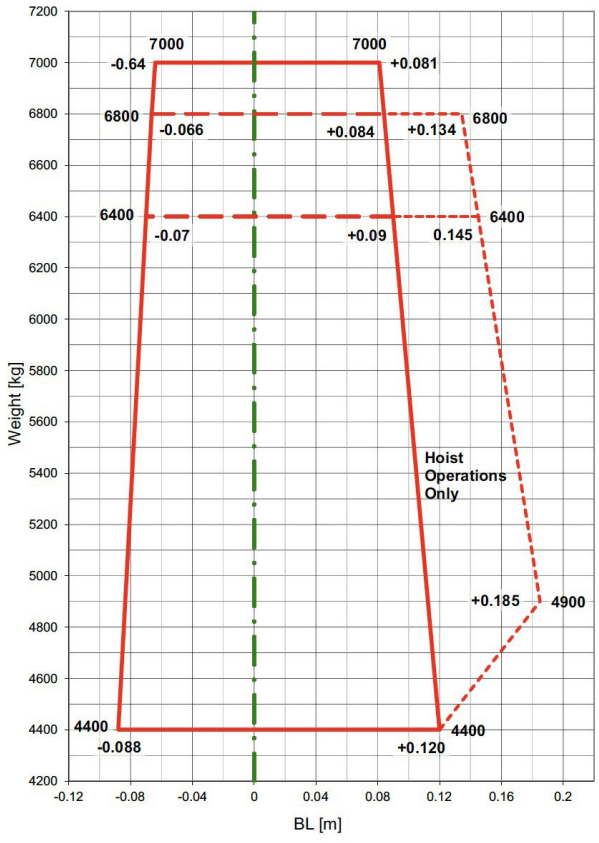
6400 kg



6800 kg



7000 kg



(01.01.06)- Speed Limitations

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AIRSPEED LIMITATIONS
Appendix RFM + Supplements AW139 Chapter 1

Vne max .....168 KIAS
Vne (Power ON, OEI/Power OFF) ..... See Appendix B.AW139.01 Figure1-5
Maximum airspeed with Take-Off Power ..... 90 KIAS
Maximum airspeed with NR at 102% ..... 90 KIAS
Maximum airspeed in sideward or rearward flight ... See Appendix B.AW139.01 Figure 1-7
Max airspeed in sideward or rearward flight,
ECS ENVIRO selected to FULL AUTO .....Supplement 87 Figure 4-4
For MAN HEAT and A/C RECYCLE selections
refer to HEATER ON and COND ON charts in Supplement 2 or appropriate Supplement.
Maximum allowable tailwind and crosswind ..... See Appendix B.AW139.01 Figure 1-7
Maximum landing gear operating airspeed (Vlo) ..... 150 KIAS or Vne if less
Maximum landing gear extended airspeed (Vle) ..... 150 KIAS or Vne if less
Minimum airspeed for flight under IFR (Vmini) ..... 50 KIAS
Maximum airspeed for IFR approach..... 150 KIAS
Maximum airspeed for climb with one AP failed ..... 100 KIAS
Maximum rate of climb with one AP failed ..... 1000 fpm
Maximum airspeed with one AP failed.....Vne - 27 KIAS
Maximum airspeed for operation of windscreen wipers..... 140 KIAS
Minimum airspeed in autorotation ..... 40 KIAS
Maximum airspeed with right cabin door locked open ..... 100 KIAS
Maximum airspeed with left or both cabin doors locked open. 80 KIAS
Maximum airspeed for opening/closing cabin doors ..... 80 KIAS

AIRSPEED LIMITATIONS
According to Supplement 90 Weight Extension 7000 KG
Vne (Power ON, OEI/Power OFF) ..... **147 KIAS**

GROUND SPEED LIMITATIONS
ON PAVED SURFACES
Appendix B.AW139.01
Maximum taxi speed ..... 40 knots (74 km/hr)
(above 20 knots (36 km/hr) nose wheel must be locked fore and aft)
Maximum for emergency landing speed
(nose wheel locked in fore and aft position) ..... 60 knots (110 km/hr)
Maximum towing speed ..... 37 km/hr (23 mph)

ON PREPARED GRASS SURFACES
Appendix B.AW139.01
Maximum taxi speed (above 10 knots (18 km/hr) nose wheel must be locked fore and aft) ..... 20 knots (37 km/hr)
Maximum for emergency landing speed
(nose wheel locked fore and aft) ..... 40 knots (74 km/hr)

CATEGORY A AIRSPEED LIMITATIONS
According to Supplement 50 - INCREASED GROSS WEIGHT 6800 KG
Maximum crosswind for Take Off and Landing CAT A
Clear Area and Confined Area Procedure .....20 kts (10 m/s)
Maximum crosswind for Take Off and Landing CAT A
Offshore procedure .....20 kts (10 m/s)
For cross wind components between 10 kts and 20 kts (5 m/s and 10 m/s)
a headwind component of at least 5 kts (2.5 m/s) is required.
Take-Off with tail wind component is **prohibited.**

GROUND SPEED LIMITATIONS
According to Supplement 50 - INCREASED GROSS WEIGHT 6800 KG
On Paved Surfaces

Maximum taxi speed .....20 knots (37 km/hr)
Maximum for emergency landing speed
(nose wheel locked in fore and aft position) ..... 60 knots (110 km/hr)
On Prepared Grass Surfaces
Taxiing on grass surfaces is prohibited.

GROUND SPEED LIMITATIONS
According to Supplement 90 Weight Extension 7000 KG

On Paved Surfaces
Maximum taxi speed
at or above -30° C..... 20 kts (10 m/s)
below -30° C ..... 10 kts (5 m/s)
Maximum for emergency landing speed
(nose wheel locked in fore and aft position)..... 60 kts (110 km/hr)

On Prepared Grass Surfaces

Taxiing on grass surfaces is prohibited.

WHEEL BRAKE LIMITATIONS
According to Supplement 90 Weight Extension 7000 KG

Maximum running speed for brake application ..... 40 knots (74 km/hr)

GROUND SPEED LIMITATIONS
According to SUPPLEMENT 97 - CATEGORY A ENHANCED OFFSHORE ELEVATED HELIDECK PROCEDURES
Maximum GS with PARK BRAKE ON.....5 kts (9 km/hr)

(01.01.07)- Flight Envelope(s)

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HEIGHT- VELOCITY LIMITATIONS

The Height-Velocity diagram defines, in the event of a single engine failure during take off, landing or other operation near the surface, a combination of airspeed and height above ground from which a safe single engine landing on a smooth, level and hard surface cannot be assured.

CAUTION

Prior to the determination of the H-V envelope the CATEGORY B weight should be defined for the ambient conditions. See Flight Planning in Section 2 for use of the CAT B W.A.T. and H-V envelope charts.

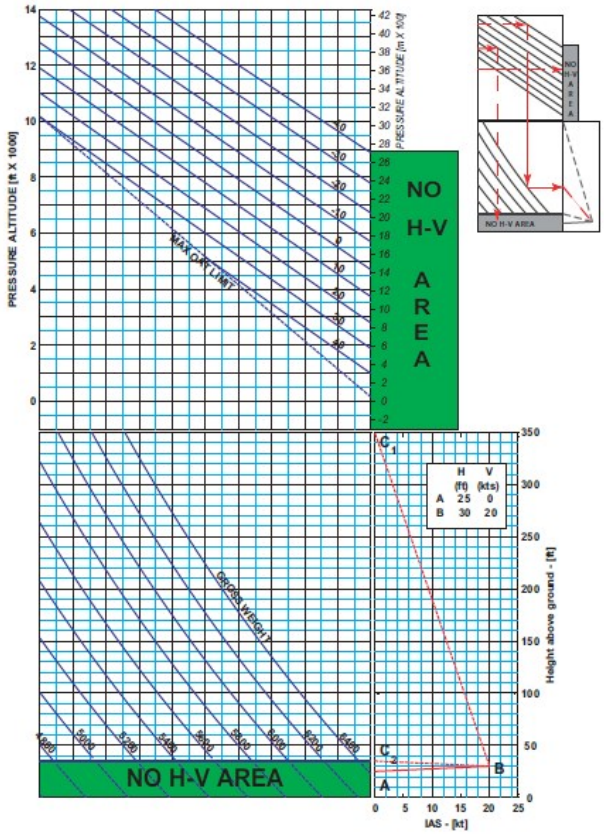
CATEGORY B OPERATIONS FOR CABIN CONFIGURATIONS UP TO 9 PAX SEATS

CAT B Operation Limitations refer Supplement 51.

Height Velocity Envelope

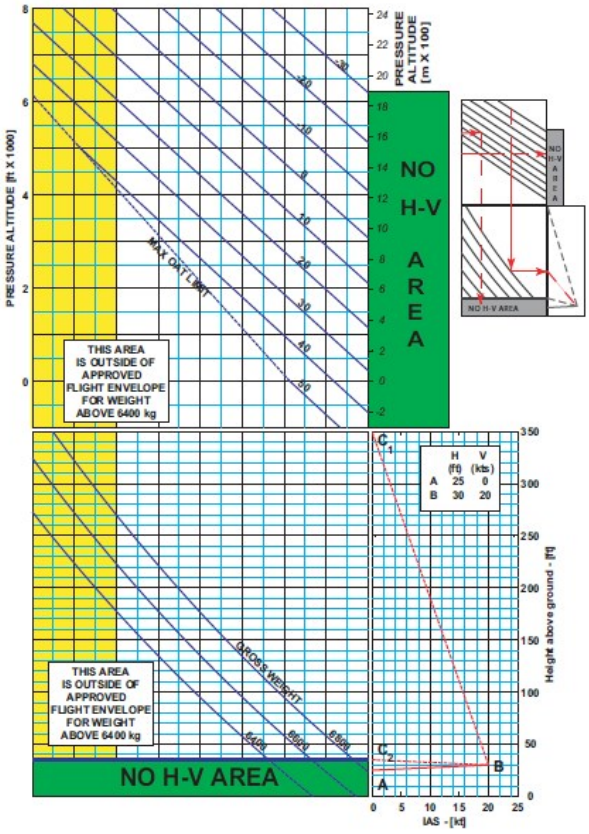
For cabin configurations up to 9 PAX seats the Height Velocity diagram is considered performance information and therefore presented in Supplement 51, Section 4 Performance Data.

Height Velocity Diagram

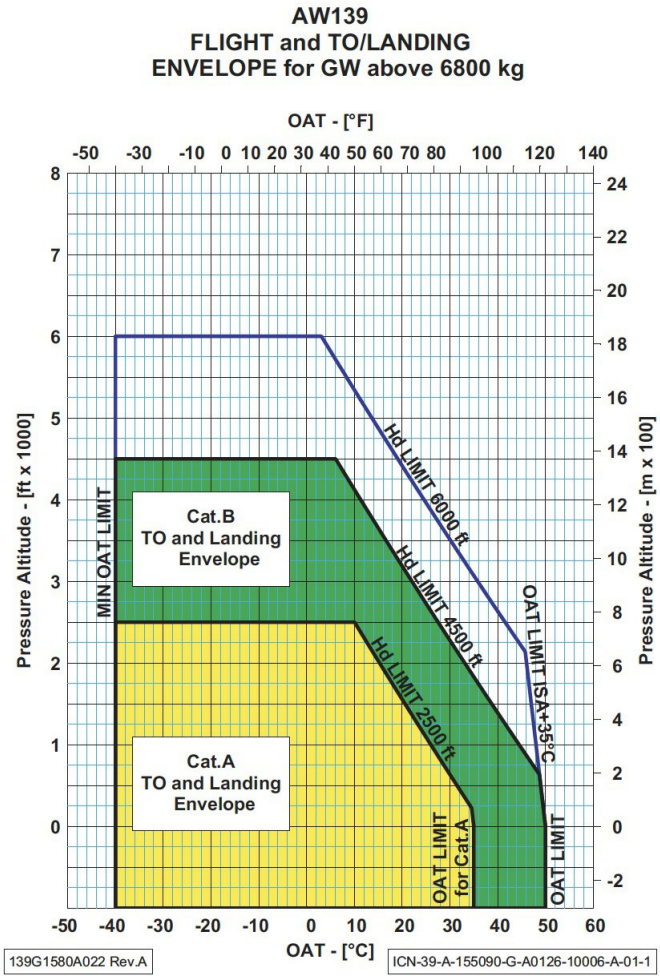


— If the given ambient conditions are not present in the chart then no H-V avoid area exists.
— If the given ambient conditions and weight intercept are within the green ‘NO H-V Area’ then no H-V avoid area exists.
— If the given ambient conditions and weight intercept indicate an H-V avoid area then low hover and knee points are fixed and the high hover varies according to the conditions and weight.

Height Velocity Diagram according to INCREASED GROSS WEIGHT 6800 KG



Height Velocity Diagram according to INCREASED GROSS WEIGHT 7000 KG



(01.01.08)- Wind Limits

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WIND SPEED LIMITATIONS FOR ROTOR STARTING AND STOPPING

Maximum wind speed ..... 60 knots (30 m/s)

Note

During rotor starting and stopping with high crosswind (greater than 30 kts (15 m/s)), lateral cyclic movement up to 50 mm (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).

CATEGORY A WIND LIMITATIONS

According to Supplement 90 WEIGHT EXTENSION 7000 KG

Maximum crosswind for Take Off and Landing

CAT A Clear Area Procedure .....15 kts (8 m/s)

Take-Off with tail wind component is prohibited.

WIND LIMITATIONS

According to SUPPLEMENT 97 CATEGORY A ENHANCED OFFSHORE ELEVATED HELIDECK PROCEDURES

Wind Benefit Chart .....Figure 1-2

Take-Off with tail wind component is prohibited.

Note

Unless otherwise authorized by operation regulations, the pilot is not authorized to credit more than 50 percent of the performance increase resulting from the wind component presented in Figure 1-2.

(01.01.09)- Performance Limitations

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ALTITUDE LIMITATIONS

Maximum operating altitude..... See RFM Figure1-6
Minimum operating altitude ..... See Figure 1-6
Maximum take-off and landing altitude ..... See Figure 1-6

ALTITUDE LIMITATIONS

According to SUPPLEMENT 50 INCREASED GROSS WEIGHT 6800 KG

Maximum operating altitude ..... 8000 ft (2400 m) Hp or Hd whichever comes first
Maximum Altitude for CAT A Clear Area
and Confined Area Take Off and Landing ... 8000 ft (2400 m) Hp or Hd whichever comes first
Maximum Altitude for CAT A Offshore
Helideck Take Off and Landing ..... 5000 ft (1500 m) Hp or Hd whichever comes first
Minimum operating altitude .....Figure 1-6
Maximum take-off and landing altitude.....Figure 1-6

ALTITUDE LIMITATIONS

According to Supplement 90 Weight Extension 7000 KG

Refer Figure 1-5 for complete altitude envelope.

Maximum operating altitude ..... 6000 ft (1800 m) Hp or Hd,
whichever comes first

Minimum operating altitude ..... -1000 ft Hp

Maximum altitude for CAT B Take O..... 4500 ft (1370 m) Hp or Hd,
whichever comes first

Maximum altitude for CAT A Clear Area Take Off and Landing ..... 2500 ft (750 m) Hp or Hd,
whichever comes first

Maximum altitude for CAT A Take Off Enhanced Offshore Procedure..... Refer Supplement 97

ALTITUDE LIMITATIONS

According to SUPPLEMENT 97 CATEGORY A ENHANCED OFFSHORE ELEVATED HELIDECK PROCEDURES

Altitude Envelope ..... See Figure 1-1
Maximum Altitude for Enhanced
Offshore Helideck CAT A Take-Off..... 1000 ft Hp (300 m Hp)

AMBIENT AIR TEMPERATURE LIMITATIONS (OAT)

Minimum temperature for ground starting..... -40° C

AMBIENT AIR TEMPERATURE LIMITATIONS (OAT)

According to SUPPLEMENT 50 INCREASED GROSS WEIGHT 6800 KG

Minimum temperature for ground starting .....-30° C
If Kit Enhanced Landing Gear P/N 3G3200F00211 fitted.....-40° C

Note

Where data at -40°C is not presented refer to -30°C lines on the charts.

AMBIENT AIR TEMPERATURE LIMITATIONS (OAT)

According to Supplement 90 Weight Extension 7000 KG

Minimum temperature for **ground starting**..... -40° C

Minimum ambient air temperature ..... -40° C

Maximum ambient air temperature .....Figure 1-5

ICING LIMITATIONS

Flight into known **icing conditions** is **prohibited.**
Flight into **freezing rain** is **prohibited.**

ICING LIMITATIONS

According to Supplement 90 Weight Extension 7000 KG
Flight in Icing conditions, Supplement 71, and
flight in Limited Icing conditions, Supplement 76, are **prohibited** at weights above 6800 kg.

CATEGORY B OPERATION LIMITATIONS

The CAT B W.A.T. Limits chart, Figure 1-7, is used to define the maximum take off and landing weight for the given ambient and wind conditions. (See Flight Planning in Section 2 for examples of using the CAT B W.A.T. Limits chart).

MANOEUVRING LIMITATIONS

Aerobatic manoeuvres are prohibited.

AUTOROTATION LIMITATIONS

Practice autorotative landings are prohibited.
During autorotation the ENG MODE select switch must not be retarded from FLIGHT to IDLE except in an emergency.

TAKE OFF LIMITATIONS

According to Supplement 9 Ditching Configuration
Take off after ditching is prohibited.

Offshore Helideck Size

According to SUPPLEMENT 50 INCREASED GROSS WEIGHT 6800 KG
Minimum demonstrated helideck size for Take-Off and
Landing for weights between 6400 kg and 6800 kg
..... Diameter 15 m (50 ft) or 15 m x 15 m (50 ft x 50 ft)

HELIDECK SIZE

According to Supplement 97 - Category A Enhanced Offshore Elevated Helideck Procedures
Minimum demonstrated helideck size ..... Diameter 15 m (50 ft) or 15 m x 15 m (50 ft x 50 ft)

SLOPE LIMITATIONS

Sloped Take Off and Landing are limited to the following:
Nose up.....5°
Nose Down .....5°
Left Wing Low .....5°
Right Wing Low.....,.....5°

SLOPE LIMITATIONS

According to SUPPLEMENT 50 INCREASED GROSS WEIGHT 6800 KG
According to Supplement 90 Weight Extension 7000 KG

Sloped Take Off and Landing are limited to the following:
Nose up.....10°
Nose down .....,.....10°
Left wing low .....10°
Right wing low .....10°

CAUTION

When landing nose down on slopes up to 10° attention should be given to have a slope that does not endanger striking the tail of the aircraft. A slope which allows the tail to overhang the top of the slope is recommended.

01.01.10-System Limitations

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(01.01.10.01)- Power Plant

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POWER PLANT (PWC PT6C-67C ENGINE) LIMITATIONS

POWER INDEX INDICATOR (PI %)

All Engines Operating

Maximum Continuous Operation.....100
Take Off (5 min) Range ..... 101 to 110
Maximum Take Off 110
Transient (5 seconds)..... 121

One Engine Inoperative

Maximum Continuous 140
2.5 minutes Range ..... 141 to 160
Maximum 2.5 minute.....160
Transient (5 seconds)..... 176

GAS GENERATOR SPEED (NG %)

All Engines Operating

Minimum for Ground Idle 55.0
Continuous Operation Range..... 55.1 to 100.0
Maximum Continuous 100.0
Take Off (5 min) range ..... 100.1 to 102.4
Maximum Take Off 102.4
Transient (5 seconds) 107.0

One Engine Inoperative

Continuous Operation range..... 55.1 to 102.4
Maximum Continuous 102.4
2.5 minute Range..... 102.5 to 106.0
Maximum 2.5 minute 106.0
Transient (5 seconds) 107.0

POWER TURBINE SPEED (NF %)

All Engines Operating

Minimum Transient..... 95
Minimum 98
Continuous Operation Range ..... 98 to 101
Maximum Continuous 101
Cautionary Range (See Supplements 11,12,13,41,49,51)... 101 to 103
Maximum Cautionary (See Supplements 11,12,13,41,49,51)..... 103
Maximum Transient (10 seconds)..... 106

One Engine Inoperative

Minimum Transient..... 85
Minimum Cautionary 90
Cautionary Range (OEI Landing Only) ..... 90 to 97
Minimum Continuous 98
Continuous Operation Range ..... 98 to 101
Cautionary Range (See Supplements 11,12,13,41,49,51)... 101 to 103
Maximum Cautionary (See Supplements 11,12,13,41,49,51)..... 103
Maximum Transient (10 seconds) 106

INTER TURBINE TEMPERATURE (ITT °C OR %)

Engine Starting
Maximum Unlimited..... 869 or 118.2
Transient (2 sec) .....1000 or 136.0

All Engines Operating
Maximum Continuous Operation.....735 or 100
Take Off range.....736 to 775 or 100.1 to 105.4
Maximum Take Off .....775 or 105.4
Transient (5 seconds) ..... 847 or 115.2

One Engine Inoperative
Maximum Continuous Operation.....775 or 105.4
2.5 minutes Range ..... 776 to 835 or 105.5 to 113.6
Maximum 2.5 minute ..... 835 or 113.6
Transient (5 seconds) ..... 847 or 115.2

OIL TEMPERATURE (ENG OIL °C)
Minimum for engine starting ..... -40
Cautionary Range for Ground Idle .....-40 to 9
Normal Operation Range ..... 10 to 140
Maximum Normal Operation 140
Cautionary Range for Torque below 60%(30min) ..... 141 to 145
Maximum for torque below 60% (30 min) 145
Transient (1 min) 150

OIL PRESSURE (ENG OIL BAR)
Minimum for ground idle (less than 1 min)..... 4.2
Cautionary Range for Ground Idle ..... 4.2 to 6.2
Minimum Normal Operation 6.3
Normal Operation Range..... 6.3 to 8.9
Cautionary Range for engine acceleration at OAT below 0° C .. 9 to 10
Cautionary Range for engine start (5 min)..... 10.1 to 15.2
Maximum for engine start (5 min) 15.2

STARTER DUTY CYCLE

45 seconds on, 1 minute off.
45 seconds on, 1 minute off
45 seconds on, 30 minutes off

POWER MARGIN TREND MONITORING

Every 50 flight hours record engine power assurance check values for engine power margin trend monitoring purposes.

(01.01.10.02)- Transmissions

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TORQUE (TQ %)

All Engines Operative
Maximum Continuous 100
Take Off (5 min) Range ..... 101 to 110
Maximum Take Off (5 min) 110
Transient (5 seconds) 121

One Engine Inoperative
Maximum Continuous 140
2.5 minutes Range ..... 141 to 160
Maximum..... 160

Transient (5 seconds) 176

OIL TEMPERATURE (°C)

Main Gearbox (MGB)
Minimum for starting..... -40
Ground Operation Range..... -40 to 0
Normal Operation Range ..... 1 to 110
Maximum Normal Operation 110

Intermediate Gearbox (IGB)
Minimum for starting..... -40
Ground Operation Range..... -40 to 0
Normal Operation Range ..... 1 to 110
Maximum Normal Operation 110

Tail Rotor Gearbox (TGB)
Minimum for starting ..... -40
Ground Operation Range..... -40 to 0
Normal Operation Range ..... 1 to 110
Maximum Normal Operation 110

OIL PRESSURE (BAR)

Main Gearbox (MGB)
Minimum for idle 2.3
Idle Range ..... 2.3 to 3.0
Normal Operation Range ..... 3.1 to 6.0
Maximum Normal Operation 6.0

(01.01.10.03)- Rotor Speed

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POWER-ON (NR%)

All Engines Operating
Minimum Transient.....95
Minimum Continuous 98
Continuous Operation Range..... 98 to 101
Maximum Continuous 101
Cautionary Range (See Supplements 11,12,13,41,49,51)...101 to 103
Maximum Cautionary (See Supplements 11,12,13,41,49,51).....103
Maximum Transient (10 seconds) 106

One Engine Inoperative
Minimum Transient.....85
Minimum Cautionary 90
Cautionary Range (OEI Landing Only) ..... 90 to 97
Minimum Continuous 98
Continuous Operation Range..... 98 to 101
Maximum Continuous 101
Cautionary Range (See Supplements 11,12,13,41,49,51)...101 to 103
Maximum Cautionary (See Supplements 11,12,13,41,49,51).....103
Maximum Transient (10 seconds) 106

POWER-OFF (NR%)
Minimum Transient..... 90
Minimum Continuous 95
Continuous Operation ..... 95 to 110
Maximum Continuous 110
Maximum Transient..... 116

ENGINE TRAINING MODE LIMITATIONS

Selection of Engine Training Mode (OEI TNG) is permitted only for Category A Training in OEI simulated conditions.

The following must be present on the aircraft for Category A operations:
— Service Bulletin P&WC S.B. No. 41020 (Turboshaft Engine Electronic Reprogramming/ Replacement Model Application PT6C-67C)
— Honeywell Primus EPIC SW P/N MM7030191-004 or later.

See Supplement 12 PART L for procedures and description of TRAINING MODE function.

CAUTION
Intentional use of actual OEI rating for training is prohibited.

(01.01.10.04)- Fuel System

Revizyon No: 4 Revizyon Tarihi: 23.08.2018
AMC3 ORO.MLR.100

FUEL PRESSURE (BAR)
Cautionary Range ..... 0.0 to 0.5
Minimum Normal Operation 0.6
Normal Operation Range .....0.6 to 2.1
Maximum 2.1

Note
In suction mode fuel pressure indication is invalid (Fuel pressure display '0' or dashed).

FUEL CAPACITIES
Total Usable ..... 1588 litres
Unusable ..... 20 litres

UNUSABLE FUEL
In coordinated (ball centered) flight ..... 0 kg indicated/
.....(8 kg/10 litres per tank actual)

Hovering in cross winds or sideways flight with sustained roll angles greater than ±15° is prohibited when fuel indication, in either tank, is less than 70 kg.

Cross feeding (tank with pump off, not supplying engines).....
.....maximum 228 kg

Note
During XFEED the unusable fuel level indication will change to grey to indicate the tank can no longer supply fuel.

FUEL FLOW INDICATION

Engine fuel flow shall not be used for fuel planning as the indication is not reliable.

AUTHORIZED FUEL TYPES

The fuels shown in the table below have been authorized for use with the Pratt and Whitney PT6C-67C engines:

Fuel Type	Applicable Specification
JET A JET A-1	ASTM D1655 ASTM D1655 NATO Code F-35
JP5	DEF STAN 91-86 AVCAT/FSII MIL-PRF-5624F NATO Code F-44

JP8 JP8+100	DEF STAN 91-87-2002 AVTUR/FSII MIL-T-83133H NATO Code F-34 Aeroshell Performance Additive 101
GOST 10227 RT GOST 10227 TS-1	GOST 10227-86 GOST 10227-86

Note
Any mixture of authorized fuels may be used.

Note
ASTM D 1655, JET A and JET A-1 fuel specification allows the use of Di-Ethylene Glycol Monomethyl Ether (Di-EGME) with the limitations reported in the Engine Maintenance Manual for the purpose of fuel system icing protection.

Note
GOST 10227 TS-1 fuel is considered by Pratt and Whitney to be satisfactory for a maximum 1000 hrs of use (intermittently or continuously) before maintenance action is required. Refer P&WC Maintenance Manual #3045332 Section 72-00-00 for details.

(01.01.10.05)- Lubricant

Revizyon No: 8 Revizyon Tarihi: 17.11.2021
AMC3 ORO.MLR.100

AUTHORIZED ENGINE OILS

The oils shown in the table below have been authorized for use with the Pratt and Whitney PT6C-67C engines. Any brand approved under the applicable specification may be used.

Oil Type	Applicable Specification	Brand Names (For reference only)
Type I (3cs)	PWC 521	BP Turbo Oil 2389 EASTMAN Turbo Oil 2389 Mobil Avrex S Turbo 256
Type II (5cs)	PWC 521	Aero-Shell Turbine Oil 500 Castrol 5000 Mobil Jet Oil II Royco Turbine Oil 500 BP Turbo Oil 2380 EASTMAN Turbo Oil 2380 Turbonycoil 525-2A Turbonycoil 600
Third Generation (5 cs)	PWC 521	Aero Shell Turbine Oil 560 Royco Turbine Oil 560

CAUTION

Mixing of any oils is not recommended and should be limited to oils brands of the same Type/Viscosity. Refer to Engine Maintenance Manual No 3045332 for information.

AUTHORIZED TRANSMISSION OIL

Applicable Specification	Brand Names

MIL PRF23699F DOD-PRF-85734	BP Turbo Oil 2380 EASTMAN Turbo Oil 2380 AeroShell Turbine OIL (ASTO) 555

(01.01.10.06)- Hydraulics System

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC3 ORO.MLR.100

HYDRAULIC FLUID TEMPERATURE (°C)

Minimum for flight control check with electric hydraulic pump ..... -50
Minimum for starting ..... -40
Ground Operation Range.....-40 to -21
Minimum Normal Operation ..... -20
Normal Operating Range ..... -20 to 119
Cautionary Range ..... 120 to 134
Maximum Cautionary 134

HYDRAULIC FLUID PRESSURE (BAR)

Minimum Cautionary 163
Cautionary Range ..... 163 to 179
Normal Operation Range ..... 180 to 225
Cautionary Range ..... 226 to 250
Maximum Cautionary 250

ELECTRICAL HYDRAULIC PUMP

The electrical hydraulic pump is for ground operation only.

AUTHORIZED HYDRAULIC FLUIDS

The hydraulic fluids shown in the table below have been authorized for use in all hydraulic components. Any brand approved under the applicable specifications may be used.

AUTHORIZED HYDRAULIC FLUIDS

Applicable Specification	Brand Names (For reference only)
MIL-PRF-83282	AEROSHELL FLUID 31
Alternative: MIL-PRF-5606 (see NOTE below)	AEROSHELL FLUID 41

Note

MIL-PRF-5606 can be used for enhanced performance of hydraulic system in low temperature environments below -30° C.

CAUTION

Mixing of hydraulic fluid, by specification or brand name, is prohibited.

(01.01.10.07)- Wheel Brake

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC3 ORO.MLR.100

Maximum running speed for brake application ..... 40 knots (74 km/hr)
Parking on slopes up to 10° is permitted for a maximum of 1 hour.

it is valid for Supplement 50 INCREASED GROSS WEIGHT 6800 KG too.

(01.01.10.08)- Pitot Heating

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC3 ORO.MLR.100

Pitot heating must be switched **ON** for indicated OAT of +4° C or less.

Pitot heating must be switched **OFF** at indicated OAT of +10° C or more.

(01.01.10.09)- Electrical System

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC3 ORO.MLR.100

DC GENERATOR LOAD (%)

Normal Operation Range..... 0 to 100
Cautionary Range (for engine starting only) ..... 101 to 155
Maximum Cautionary 155
(Maximum Cautionary may be exceeded for maximum of 45 seconds for engine start only)

DC GENERATOR MAXIMUM NORMAL OPERATING LOAD (%)

Up to 15000 ft (4570 m) Hp ..... 100 (equivalent 300 A)
Above 15000 ft (4570 m) Hp .....reduce by 13.4 every 1000 ft (300 m)
(see Placards on page 66 or, for aircraft fitted with EPIC S/W Phase 5 or later, Supplement 68)
20000 ft (6100 m) Hp..... 33
MPOG with generator load at 75% or less.....No time limitations
MPOG with generator load greater than 75%.....Max 20 minutes

BATTERY LOAD (A)

Battery Discharge ..... -200 to 0
Battery Charge..... 0 to 200

MAIN AND ESSENTIAL BUS VOLTAGE (V)

Minimum Normal Operation 22
Normal Operation..... 22 to 29
Maximum Normal Operation 29

(01.01.10.10)- AFCS - Automatic Flight Control System

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC3 ORO.MLR.100

Minimum AFCS configuration for IFR flight.....2 AP in ATT mode

Intentional ATT MODE de-selection during IFR flight is prohibited.

(01.01.10.11)- Avionic

Revizyon No: 11 Revizyon Tarihi: 24.06.2023

AMC3 ORO.MLR.100 / RFM

ILS MODE LIMITATIONS

Appendix RFM + Supplements AW139 Chapter 1

The helicopter is certified to carry out CAT 1 ILS approaches up to 7.5 deg glideslope.
Maximum airspeed for glideslope up to 4 degrees ..... 150 KIAS
Maximum airspeed for glideslopes between 4 and
7.5 degrees (Steep Approach) ..... 120 KIAS

CAUTION

During steep approach, take care not to use less than 5% PI.

FMS LIMITATIONS

Appendix RFM + Supplements AW139 Chapter 1

1. The pilot must verify the currency of the Navigation Data Base (NAV DB) on-board and the coherence of the FMS data with the procedure to be flown.

2. When SBAS GPS are not installed (refer to Supp. 68) or the a/c is out of SBAS coverage or in case of SBAS outages, predictive RAIM (P-RAIM) on destination waypoint shall be checked on
MCDU.

Note

The Pilot must not continue an instrument approach inside the Final Approach Fix (FAF), unless the 'APP' advisory is displayed on the PFD.

— Use of LDA (landing directional aid), SDF (simplified directional facility) and MLS (microwave landing system) approaches are not authorized.

DIGITAL MAP LIMITATIONS

Appendix RFM + Supplements AW139 Supplement 28

The EURONAV IV, V or 7 Digital Map must not be used for navigation.

CAUTION

The Digital Map display is intended to serve as an awareness tool only. The display and database may not provide the accuracy and fidelity on which to base routine navigation decisions and plan routes.

(01.01.10.12)- Miscellaneous

Revizyon No: 11 Revizyon Tarihi: 24.06.2023

AMC3 ORO.MLR.100 / RFM

Pilot(s) must not use polarized type sun glasses.

VENTILATION

Appendix B.AW139.01

At MPOG / HIGE / HOGE or with helicopter forward velocity below 25 kts (46 km/hr), operate cockpit fans or open pilot or copilot window.

TORQUE LIMITER FUNCTION

Appendix B.AW139.01

If TORQUE LIMITER is set, max AEO TQ available is 114% / 114%.

SYNOPTIC MFD PAGE LIMITATION

Appendix B.AW139.01

In case of MAU1(2) failure, do not refer to the electrical and hydraulic synoptic page. The information presented is not reliable.

HEADSET/HELMET LIMITATIONS

Appendix B.AW139.01

Headset/Helmet type used in the aircraft must be of the same electrical characteristics and authorised by Aircraft Manufacturer.

BAGGAGE COMPARTMENT LIMITATIONS

Appendix B.AW139.01

Maximum baggage compartment load .....200 kg (440 lb)
All cargo must be secured with restraint net or other approved means.
Maximum unit load .....300 kg/m2 (61 lb/sq.ft)
Maximum load height .....600 mm (2 ft)

BAGGAGE COMPARTMENT LIMITATIONS

Appendix RFM Supplement 31 INCREASED BAGGAGE COMPARTMENT LOAD

Maximum load with restraint net (P/N 3G2550A00231) **300 kg** (660 lbs)
When rear part of baggage compartment is occupied with equipment, maximum load with installation P/N 3G5306P30511 and restraint net P/N 3G2550A03031 ..... 200 kg (440 lbs)
Baggage must be secured with restraint net or other approved means.
Maximum unit load ..... 550 kg/m2 (110 lb/sq.ft)
Maximum load height.....600 mm (2 ft)

Flotation System
According to Supplement 9 Ditching Configuration
The Emergency Flotation system shall only be used for ditching.
Flotation bags shall not be inflated in flight.

Weather Radar - WX P701 LIMITATIONS
According to Supplement 21

The weather radar WX P701 must not be used for terrain avoidance.
The BEACON data is not available on the PFD's.

EPIC Software Phase 7 Spesific Functions LIMITATIONS
According to Supplement 79

ADS-B OUT LIMITATIONS

The optional ADS-B Out transponder cannot be installed together with a stand-alone ADS-B Out UAT transponder.

EGPWS MK XXII-030 LIMITATIONS
According to Supplement 81

BUILD STANDARD

The EGPWS Mk XXII-030 requires the PRIMUS EPIC system and for the additional function the software EB7030191 - 00110/00111/00112/00114/00115 (Phase 7).

EGPWS LIMITATIONS

— EGPWS must not be used for navigation.

CAUTION
The Terrain and Obstacle display is intended to serve as a terrain and obstacle awareness tool only. The display and database may not provide the accuracy and fidelity on which to base routine navigation decisions and plan routes to avoid terrain or obstacles.

— Low Altitude Mode shall not be selected when operating under IMC conditions except as required when performing offshore platform IMC Approach Procedure.

— The EGPWS may not be reliable during Primus HF 1050 radio (Supplement 8) or V/UHF FLEXCOM II radio (Supplement 16) transmissions.

EGPWS DATA BASE LIMITATIONS

— The EGPWS Data Base installed shall be the last update for the region being flown.

CAUTION
Verify that obstacles are included for the area of the world where operations are conducted.

— The data base provides information on terrain and obstacles (higher than 100 ft AGL). Power lines/wires are not included.

TABLE OF CONTENTS

02-NORMAL PROCEDURES

AMC3 ORO.MLR.100 / RFM

02.01-Normal Procedures and duties assigned to the crew, the appropriate checklists, the system for their use and a statement covering the necessary coordination procedures between flight and cabin/other crew members

Revizyon No: 7 Revizyon Tarihi: 21.06.2020

AMC1 ORO.GEN.110(f)(h) / RFM

GENERAL

The following procedures are the result of extensive flight tests and experience with the AW139 aircraft. They are intended to ensure that the level of safety required by the design and certification process is achieved.

Note

*Throughout the RFM Section 2, checks marked with a large **--->** are required only before the first flight of the day. 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. The minimum and maximum limits, and the normal and cautionary operating ranges are indicated on the PFD and MFD displays, Refer to RFM 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.

Examples for **Crew Communication** are described in OM B 02.02

Normal operating procedures checklist

For the AW139, valid checklists from Leonardo shall be used. KAAN AIR company checklists, which are based upon the Leonardo checklists are used to reflect the company specific operations and differencies on any individual registration. Refer to NCL - Normal Check Lists for any registration in the fleet at the Appendix section.

During a single pilot start, the PF may complete the checklist from memory as long as the actions are then confirmed from the checklist.

The abbreviated checklist is for day-to-day use and assumes a level of knowledge of the aircraft appropriate to allow some of the details shown in the normal checklist to be recalled from memory, i.e. Hover checks. All the abbreviated checks are shown in Appendix.

Operation of the parking brake and landing gear operating lever

Although both crewmembers can reach these items, the crewmember nearest these controls should operate them. This is generally the right-hand seat pilot. When the parking brake lever is operated by the right seat pilot, the collective should be covered by the left seat.

Whenever the parking brake is applied, the pilot applying is to place their hand on the lever and ask for confirmation before application. Once on, it must be called by the pilot operating hence letting the other pilot know that the brake is on. It should not be applied whilst the aircraft is moving as there is no graduation to its application pressure, therefore the main wheels may lock up.

To release the parking brake, either pilot depresses both pedals simultaneously; the parking brake lever should then be guided back into the off position. If it is allowed to fall, damage could be done to the parking brake mechanism.

Flotation Gas Bottle Pressure
According to Supplement 9 Ditching Configuration

For installations that have the flotation gas bottle pressure gauge the gas bottle pressure limitation is related to ambient

temperature.

(02.01.00)- Checklist Handling

Revizyon No: 7 Revizyon Tarihi: 21.06.2020

ORO.GEN.110(h) / AMC1 ORO.GEN.110(f)(h) / Operator Procedure

TASK SHARING

The following procedures apply to any flight phase but are particularly important in the high-workload phases associated with **takeoff, departure, climb and approach-and-landing.**

The designation "C/M--1, C/M--2", refer to the crew members' physical location:

- "C/M--1" is the right hand seat pilot (R),
- "C/M--2" the left hand seat pilot (L).

When the pilot in command is in a position other than the C/M-1 position, he will continue to exercise his command authority while performing the duties assigned to that crew position. The pilot in command will brief the other crew members to ensure that they understand the duties of their assigned position.

The **Pilot Flying (PF)** is responsible for controlling the vertical flight path and horizontal flight path, by either:

- Supervising the auto pilot (AP) vertical guidance and lateral guidance and the collective mode (HOV/SAR) operation (i.e., awareness of modes being armed or engaged, of mode changes through mode transitions and reversions and of selected guidance targets);or,
- Hand flying the aircraft, with or without flight director (FD) guidance and with or without ATT Mode (SAS) assistance.

The **Non-Flying Pilot (PNF)** has a dual role as pilot-not-flying and pilot monitoring; he/she is responsible for systems-related and monitoring tasks and for performing the actions requested by the PF; this includes:

- Radio communications;
- Systems selection / configuration;
- AP / FD and FMS mode selections and target entries, when PF is hand flying;
- Monitoring the status of the aircraft (e.g., configuration, attitude, speed, trajectory);
- Performing the actions called by paper checklists, in abnormal and emergency conditions; and,
- Monitoring the PF to provide effective cross-check and backup, as required (i.e., standard calls and excessive deviation callouts).

Note: *The non-flying-pilot should inquire PF actions that are not understood or considered inappropriate. He/she should also demonstrate assertiveness and express advocacy to share any concern on the flight progress.*

The industry recognizes that both the flying-pilot and the non-flying-pilot have a monitoring role.

PANEL SCAN DIAGRAM

The diagram below describes each crew member's area of responsibility and scan flow pattern for each panel.

CHECKLISTS & PROCEDURES

The cockpit **normal checklist (NCL)** is intended as a 'check list 'rather than an action list, that is to say that items may be carried out from memory provided they are then followed up by PNF reading the checklist and confirming with PF that all required actions have been completed. Once a checklist drill has been completed, PNF shall announce, e.g. **''(After Take Off) Checks Complete.**

As far as possible, the checklist indicates the expected response. The term ''As Req..d'' is used where there may be a choice of settings. In these cases, the actual setting is to be announced. The phrase ''As Required'' shall not be used as a response to a checklist item.

CHECKLIST HANDLING

The Captain shall ensure that the following basic guidance shall be complied with:

- Company checklist procedure is to follow the 'Challenge and Response' principle
- Pre-start/Engine Start/Post Start/Shutdown checklist
    - Challenge: PNF calls checklist item

    - Response: PF verbally acknowledges item
- When the checklist is read, both pilots must be at their flight stations
- The PF calls for the appropriate checklist section
- The PNF reads the checklist and must report its completion
- When the aircraft is parked and the rotors are not yet running, actions in response to the checklist should, as far as possible, be completed by the PF
- With the rotors running, the PNF should, as far as possible, read and complete the relevant checklist
- Reading and response of the items of the Cockpit, Before Starting, Taxi, Before Take-Off, Approach and the Final Checklist **should always be done aloud**, regardless which pilot completes the necessary action. The items of - the Cabin, After Engagement, Before Taxi, After Take-off, Cruise, After Landing, Hot Refuelling, Rotor Stop and the Shut Down Checklist may be completed by heart and checked afterwards by reading the relevant checklist; reporting its completion shall always be done aloud
- The pilot not performing the action should check the responses and action to be correct
- In flight no checklist should be read below 300 ft AGL

NOTE: It is normal procedure to read the after takeoff checklist after 500ft AGL.

- In order to monitor the level off at the cleared altitude, no checklist should be read during climb or descent if the difference between the actual altitude and the cleared altitude is less than 200 ft
- During take-off and landing cockpit conversation should be limited to standard calls
- Gear selections should be made by the PNF upon command of the PF (It‘s preferable that gear selections be made by the RH pilot). Before making the selection, the PNF will satisfy himself that operating limitations and flight procedures allow the configuration change; if not, he will inform the PF accordingly. It should be briefed that any movement of switches on RH collective will be done by RH pilot.
- On completion of a checklist section, the reader calls: ‘(appropriate) Checks complete’.

    - For example, ‘Initial approach checks complete’.
- If the calling of a checklist is interrupted, the reader calls ‘Checklist suspended at…’.

OPERATING POLICY

Normally both pilots shall occupy their seats during all phases of flight. At the captain's discretion, the first officer may occupy the RH seat. The assignment of the first officer to PF duties is done with the intention that he fulfils these duties for the whole flight.

Either pilot LH / RH may fly the aircraft, unless special circumstances preclude this.

Should the captain wish to take-over control during any stage of the operation, he will clearly call **'my controls'** where upon the transfer of control will take place. This transfer of control shall be acknowledged by calling: **'your controls'**.

Should the PF wish to hand-over controls during any stage of the operation, he will clearly call: **'your controls'** where upon the transfer of controls will take place.

This transfer of control shall be acknowledged by calling: **'my controls'.**

CREW CO-ORDINATION

Operating procedures have been developed to achieve the optimum use of both pilots. Many duties may be carried out by either pilot, depending upon which one at the particular time is more readily available. However, system handling by the PF shall never interfere with his main task, i.e. flying the aircraft.

The utmost attention must be given to good crew co-ordination during all phases of flight. The captain must ensure that the crew briefing is completed prior to every take-off, approach and landing. Normally the crew briefing will be given by the PF.

Pilot duties are interchangeable. The crew co-ordination procedures use the terminology. 'Pilot Flying' (PF) and 'Pilot Monitoring' (PNF).

Some crew co-ordination procedures may use the terminology: 'Captain' and 'First Officer' or 'Pilot' and 'Co-pilot', indicating the requirement for the captain or the first officer, or the RH pilot or the LH pilot to be actively in control of the aircraft.

All commands related to the handling of the aircraft given by the PF (if PF is First Officer these 'commands' should be regarded as advisory), shall be acknowledged when carried out by the PNF. Commands of which the completion requires some time, (e.g. landing gear, power settings) shall be repeated by the PNF and acknowledged as soon as the desired position, setting etc. has been obtained.

NOTE: These crew co-ordination procedures do not in any way erode the responsibility of the Captain who, regardless of his position (LH / RH seat) or function (PF / PNF), is always the Pilot In Command !

Apart from the necessity to monitor the flight execution generally and inform the PF of any observed deviation, the PNF shall also call:

- 'APPROACHING' when approximately 200 ft below/above the cleared altitude or flight level during climb/descent
- 'BANK' whenever the bank angle exceeds 35º during normal flight, or 15º where that restriction is applicable
- PITCH' any time the pitch exceeds 30º nose-up or nose-down, or 10º nose- up below 30 ft AGL
- 'SPEED HIGH/LOW' if the speed is more than 10 Kts from the intended value, or exceeding minimum or maximum values
- 'SINK RATE' when the rate of descent during approach below 1000 ft AGL exceeds 1000 ft PNF, or below 500 ft exceeds 500 ft PNF
- 'TORQUE HIGH/LOW' if the power setting is more than 10% Q from the intended value, or exceeding maximum values
- 'LOCALIZER' any time localizer deflection is more than ½ scale (1 dot) 'GLIDESLOPE' any time the glideslope deflection is more than ½ scale (1 dot) 'RADIAL' any time the CDI deflection, based on a radial, is more than ½ scale (1 dot)
- 'TRACKING' any time the tracking error during an NDB approach exceeds more than 5º
- 'ALTITUDE HIGH / LOW' any time the deviation is more than 100 ft from intended altitude (BARALT)
- 'HEIGHT HIGH / LOW' any time the deviation is more than 100 ft from intended height (RADALT)
- 'HEADING' any time the deviation is more than 5° from intended track

(02.01.01)- Pre-flight

Revizyon No: 7 Revizyon Tarihi: 21.06.2020

AMC1 ORO.GEN.110(f)(h) / RFM

TECHNICAL REQUIREMENTS

The Commander shall ensure that the requirements of the relevant maintenance inspections have been complied with before flight. During normal scheduled operations, maintenance personnel will conduct all of these inspections. However, if the aircraft has been parked overnight and a technician is not available, the Commander must perform and sign for the Preflight Check (PFC) in the appropriate block in the Technical Log.

GENERAL CONDUCT OF INSPECTIONS

The Commander shall decide which pilot carries out the exterior inspection and which pilot carries out the interior inspection. Both inspections must be completed before engine start.

On approaching the aircraft note the wind direction and check that the surface below the helicopter is ice free with no signs of fuel or oil spillage. Ensure there are no obstructions or loose articles, a fire extinguisher is available and chocks are in place. Remove all protective covers and blanks if they are still fitted

EXTERIOR CHECKS

General

During walk-round checks in cold weather, particular attention must be paid to ensure the airframe, intakes, blades, antennae and emergency exits are free from snow and ice build-up.
During the course of the checks all maintenance access panels and work platforms should be checked closed and secure.

Checks should commence from the right-hand cockpit door and proceed clockwise around the helicopter.

NOTE 1: When checking oil and fluid levels, ensure allowance is made for any sloping ground (MGB) and that levels are re-checked after ground runs in case air has been purged from the systems with a subsequent fall in the levels. Oil and fluid levels should normally be checked within 15 minutes of shutdown.

NOTE 2: When taking over an aircraft rotors running, carry out a visual inspection for leaks, security of panels, obvious signs of damage and any buid up of ice or snow.

NOTE 3: Checks marked with > are required only before the first flight of the day. All other checks are to be carried out before each flight.

AREA N°1: Helicopter nose
AREA N°2: Fuselage - RH side
AREA N°3: Tail boom - RH side
AREA N°4: Fin, intermediate/tail gearbox, tail rotor
AREA N°5: Tail boom LH side
AREA N°6: Fuselage - LH side
AREA N°7: Cabin and Cockpit interior

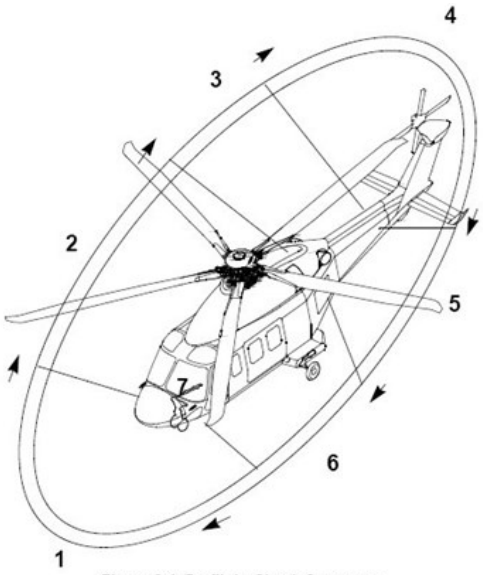


Figure 2-1 Preflight Check Sequence

GENERAL CHECKS

1. Main and tail rotor tie downs (if present).....Removed
2. Check helicopter position..approximately into Wind direction
3. Check for fuel or oil spillage
4. Check if surface is ice and FOD free
5. Check for obstructions
6. Check for loose artiche
7. Check chocks in place
8. Check a fire extinguisher is available and operational for start-up

*The External Pre-Flight check shall be conducted in accordance with the RFM.

(02.01.02)- Starting

- Refer to RFM for Interior Checks, Cockpit/Engine Pre-Start Checks,
- Refer to RFM or NCL (Normal Check List) for **Engine Start**, Quick Engine Start, After Start checks,
- Refer to RFM or NCL (Normal Check List) for Aborted Engine Start, if needed,
- Refer to RFM or NCL (Normal Check List) for Dry Motoring Procedure, if needed,

(02.01.03)- Systems Check

Revizyon No: 7 Revizyon Tarihi: 21.06.2020

AMC1 ORO.GEN.110(f)(h) / RFM

- Refer to RFM or NCL (Normal Check List) for **System Checks,**
- Refer to RFM or NCL (Normal Check List) for TCAS Test, if installed,
- Refer to RFM or NCL (Normal Check List) for EGPWS System Test, if installed.

(02.01.04)- FMS Setup

Revizyon No: 7 Revizyon Tarihi: 21.06.2020

ORO.GEN.110(h) / AMC1 ORO.GEN.110(f)(h) / RFM

GENERAL

Normal operating procedures are outlined in the Honeywell Flight Management System (FMS) Pilots Manual for Software for the Agusta AW139.

Note: *For complete FMS operations, refer to the Honeywell Flight Management System (FMS) Pilot Manual for the AW139.*

In the GPS status page (MCDU) RAIM (Receiver Autonomous Integrity Monitor) and FOM (Figure of Merit) are displayed. RAIM and FOM indicate current uncertainty of position expressed in nautical miles. In addition to RAIM for current condition, the GPS receiver predictive RAIM calculation gives the pilot an indication as to whether the GPS geometry will be satisfactory for approach at the selected or expected arrival time. YES indicates RAIM is predicted to be within approach criteria. NO indicates RAIM is predicted to be unacceptable or unavailable.

PRE-DEPARTURE OPERATIONS

At the power-up of the system, **NAV IDENT** page is presented on MCDU. Basic pre departure operations are:

1. Initialize the position by pressing **POS INIT** key and loading present position (right keys on POSITION INIT page)
2. Press FLT PLAN key (6R) to prompt **ACTIVE FLT PLAN** page and recall or create a FPL
3. Press FPL key and activate the flight plan
4. Press **PERF** pushbutton, enter performance data and confirm (**CONFIRM INIT** key)
5. If required select and activate arrival and departure
6. If required insert ALTERNATE data and waypoints
7. If required press PATTERNS key (on NAV page) to select and activate **holdings, flyovers, suspend** and other patterns.

Note*: Above procedures may be monitored on PLAN page of MCDU. Once in flight, the ACTIVE FLT PLAN page 1 and PROGRESS page 1 are considered the primary pages of the FMS.*

MESSAGE (MSG)

MSG is an advisory (amber) annunciator that is displayed on the PFD. This annunciator is displayed when a message is shown in the scratchpad. The annunciator is removed after the message has been cleared from the scratchpad.

Messages are displayed in the MCDU scratchpad at various times. They inform or alert the pilot as to system status.

Messages are divided into the following two major groups:

1. ADVISORY MESSAGES. Advisory messages contain information that is helpful to the pilot. Advisory messages are usually the result of a pilot action on the MCDU (e.g., making an entry with the incorrect format).
2. ALERTING MESSAGES. Alerting messages alert the pilot to the FMS status, assuming the pilot is not looking at the MCDU (e.g., message annunciating, sensor failure).

Messages are stacked for display in priority order on a first in, last out basis. In cases where there are multiple messages stacked, the message annunciator remains displayed until all messages are cleared. Only one message can be cleared per CLR key push.

(02.01.05)- Before Take-off / Take-off Briefing

Revizyon No: 7 Revizyon Tarihi: 21.06.2020

ORO.GEN.110(h) / AMC1 ORO.GEN.110(f)(h) / Operator Procedure

Under normal circumstances, abbreviated briefings will be used for takeoff. This assumes that PF will fly the takeoff in accordance with the profile specified in this section and emergencies will be handled in accordance with RFM / OM-B section 3 with the applicable drills in the emergency and abnormal checklist.

Where the abbreviated briefings do not give the necessary degree of information, for example when operating from an unfamiliar airfield, PF must give a full briefing outlining his intentions prior to takeoff.

FULL BRIEFINGS

A full departure briefing shall include the following points:

- Type of takeoff / description of the profile.
- If CAT A; TDP and VTOSS to be used.
- Confirm the radios are tuned to the correct frequencies, the navaids are identified and set correctly for the departure to be flown and the initial course is set on the HSI display or HDG bug.
- Confirm the weather is above minima for departure.
- Standard calls expected.
- Intentions in the event of an emergency after TDP (e.g. visual circuit/ return for instrument approach/ different approach at departure airfield/ divert to alternate).

In addition, a full **IFR departure briefing** shall include the following points:

- Instrument Check, Bugs, Idents etc
- Profile to be followed (both pilots shall verify they have the correct chart available).
- AP/CPL modes and IAS to be used during the departure.
- Detailed description of the SID or departure profile, including tracks, radials, altitudes, MOCA, MORA or minimum (or maximum) SID altitudes and other pertinent performance information.
- Detailed description of the contingency procedure, if published.
- Takeoff alternate.

Note: *In the normal checklist, the abbreviation MSA is used throughout. In this context this means the appropriate minimum safe altitude for the phase of flight.*

ABBREVIATED BRIEFINGS

Example abbreviated briefings are given in the following paragraphs.

Standard procedure calls during takeoff

An abbreviated briefing assumes that the normal procedure calls listed in section Normal Procedure calls during takeoff and departure and in the event of an engine failure, any applicable emergency calls listed in section Engine Failures during take and landing will be made during takeoff.

Takeoff brief by PF, CAT A/B takeoff

- Cat A/B (takeoff (TDP XX, VTOSS YY).

- The departure routing is XXX.
- Malfunctions at or after TDP, visual circuit (OR: recovery via instrument approach).

(02.01.06)- Power Assurance Check (PAC)

Revizyon No: 8 Revizyon Tarihi: 17.11.2021

ORO.GEN.110(h) / AMC1 ORO.GEN.110(f)(h) / RFM

ENGINE POWER CHECKS

The purpose of the Engine Power Assurance Check is to provide a means of monitoring engine health on an on-going basis. A HOVER power assurance check procedure is provided to the operator. **The procedure should be used to check if the engine power available is within the limits established for the legitimate use of the Rotorcraft Flight Manual performance.**

The power assurance check is completed in every 25 flight hours **(but daily in offshore duties)** at a convenient time, preferably at a high AUM to prevent the aircraft from becoming airborne. Engine Power assurance check should be completed in compliance with Section 4 of the RFM.

*Caution: If average **ITT** Power Assurance Margin of the last three PACs is **less than 10 °C** or average **NG** Power Assurance Margin of last three PACs is **less than 0.5%**, Engine Power Assurance Checks are required **daily.***

HOVER POWER CHECKS PROCEDURE

The following procedure is used to check engine performance before flight:

***Caution:** Observe all engine and transmission max continuous limits and aircraft operating limits during this check.*

1. Position the aircraft into the prevailing wind to minimize hot gas ingestion.
2. Record date, aircraft serial number, aircraft hours, engine serial number and engine hours.
3. Confirm that the AUTO MODE HTR/COND switch is set to OFF and HEATING SOV switches are OFF (if fitted).
4. Set the barometric pressure to 1013 mb or 29.92 inches.
5. Confirm both the ENG MODE switches at FLT, set BUS TIE switch to ON, select ENG MODE switch of engine NOT being tested to IDLE.
6. With the rotor speed at 100% (or 102% for Cat A operations), set the collective until ‘light on wheels’ or Hover at 5 feet to obtain a percent torque value within the range shown on the top graph of Figure, depending on the airfield elevation; **preferable 90%**)
7. Maintain a fixed collective for one minute, then record the following data from the Primary and Multi Function Display:
    - Pressure Altitude
    - OAT
    - NG
    - TQ
    - ITT

    1. When recording is completed lower collective to MPOG, select ENG MODE switch of engine not being tested to FLT.
8. Repeat steps (1) through (8), for the remaining engine.
9. Select BUS TIE switch to AUTO.
10. On the appropriate figure plot readings for each engine.
11. When recording is complete, lower collective to MPOG and select the ENG MODE switch of the engine not being tested back to flight.
12. On completion

    BUS TIE switch..... AUTO
    ENG MODE switch of both engines..... FLT

Compare the recorded Ng and ITT values with the maximum allowable values for the altitude and OAT (on the chart).

The difference between maximum allowable ITT/Ng and recorded ITT/Ng is called the Power Assurance Margin (PAM). If

the recorded ITT or Ng value is **less** than the maximum allowable value, engine condition is **acceptable** for flight.

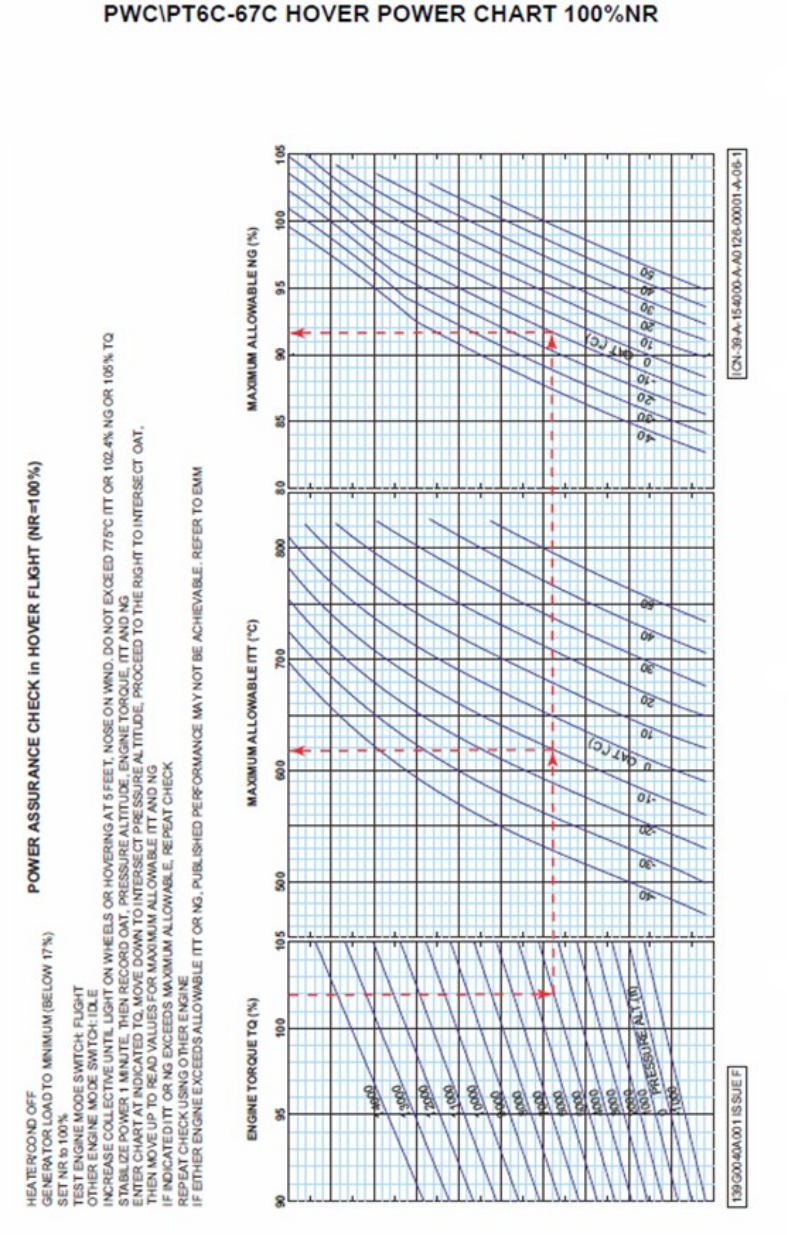
If the recorded ITT or Ng value is **greater** than the maximum allowable value, the **performance in the RFM may not be achieved** and **Engineering must be informed**.

POWER MARGIN TREND MONITORING

Every 25 hrs record engine power assurance check values for engine power margin trend monitoring purposes.

Note: *Use another rotor speed 102% table for Cat A operations which included NCL or Supplement 12 Section 4K Performance Data.*

PWC\PT6C-67C HOVER POWER CHART 100%NR



(02.01.07)- Taxi / Take-off (Cat-A & B) and Climb

Revizyon No: 7 Revizyon Tarihi: 21.06.2020

AMC1 ORO.GEN.110(f)(h) / RFM

GROUND TAXI CHECKS

Refer to RFM or NCL.
This checklist is called for by the PF and read and auctioned by PNF.

Ensure chocks are removed, any GPU is disconnected and clear, and the ground crewman has given the thumbs up signal.

During all ground movements landing light shall be switched ON.

To Start Taxiing
Increase collective slowly then move the cyclic forward to initiate aircraft movement, centre the cyclic and reduce collective pitch to control speed. Check the brake operation.

Note: Taxi speed shall not exceed a brisk walking pace.

Turning
To turn the helicopter, initiate forward movement. Gradually press the yaw pedals, or use differential braking for tighter turns. When the turn is established, reduce pedal deflection towards neutral and reduce power slightly, if applicable. Keep the disc level.

Caution:
When ground taxiing, a momentary interruption of the weight on wheels current will cause the nosewheel lock to engage, making the helicopter impossible to turn. If this happens, use the brakes to stop the helicopter first before disengaging the nosewheel lock. If the nosewheel lock is disengaged while moving with significant pedal applied, the subsequent sudden yaw and roll can be very hazardous.

When turning and when stopping a turn, in particular when straightening up from a left turn, cyclic should normally be applied in the same direction as the pedal input (avoid cross-controlling).

***Note**: Turning whilst taxiing, should be carried out with collective at minimum pitch and cyclic central or as required to compensate for crosswind.*

BEFORE TAKE OFF CHECKS

Refer to RFM or NCL.
Strobes and Anti Collision lights are switched on as the aircraft enters the active runway. The remaining checks are done when the aircraft is lined up on the runway.

The PF will brief the PNF and note any variations to standard procedure. The normal profiles are described hereafter. Handling of emergencies during takeoff and associated profiles are also detailed.

PRE-TAKE OFF CHECKS
According to Supplement 9 - Ditching Configuration

Over water operation — ARMED, FLOAT ARM caution displayed on CAS.

PRESETTING OF AFCS COUPLE MODES ON DEPARTURE

The HDG bug and ALT SEL may be preset before departure.

NORMAL PROCEDURE CALLS DURING TAKEOFF AND DEPARTURE

The table below shows the normal procedure calls and responses to be used.

Type of takeoff	PNF call	PF response
All takeoffs	**'Two AP's'** Hover checks complete, PI XXX %	**'Lifting'** **'Rotating'**
Clear airfield (Runway takeoff)	Power Set (correct value) Speed Alive TDP, VTOSS 50/50 (Cat B Only) Vy	Continuing
All takeoffs (unless specified otherwise by the procedure)	Vy plus >200 feet Select & Call "Gear Up, Lights out"	Calls "Gear up" (provided aircraft at or above Vy).
All takeoffs	500 feet Complete after takeoff checks. Call:**"After takeoff checklist complete"**	-**"After takeoff checklist"**
All departures before briefed / clear altitudes	500 to go 100 to go	-500 to go -Levelling
All departures before briefed / clear headings	10 degrees to go	10 to go
All departures changes to clear altitudes or headings	New heading XXX degrees New clearance X000 ft	-New heading XXX -New clearance X000

Note: *No response required to speed calls.*

HOVER CHECKS

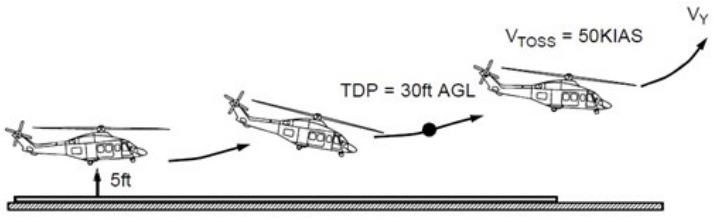
Refer to RFM or NCL.
These checks are carried out by the PNF from memory. If satisfactory, PNF reports "Hover Checks complete, PI xxx,". After completion of the Before Take Off Checklist both pilots shall check that the area is clear. When ready the PF will call: "Lifting", the PF will then apply collective to establish a stationary hover.

The PNF shall continue to monitor Nr, PI, engine instruments and the CAS throughout the takeoff.

CLEAR AREA CAT A TAKE-OFF PROCEDURE

Clear Area Normal All Engine Operating Take-Off

The Clear airfield takeoff procedure is an accelerating and gently climbing profile with TDP at 30 ft and a Vtoss of 50 KIAS



Clear Area Cat A takeoff procedure.

- PF calls "**Lifting**" and lifts to the hover at 5 ft.
- PNF reports PI value as part of the hover checks.
- When hover checks are complete, rotate to 5 nose down. Halfway through the rotation, increase PI to a value 18% above hover power (subject to a maximum of 110%) to initiate a gentle climbing acceleration to TDP.
- At TDP (30 ft AGL), verify Vtoss has been reached then adjust attitude to 5 degrees nose up on the ADI to attain Vy.

- At Vy select Nr at 100%.
- After Vy set climb speed and adjust to climb power.
- At 200ft and Vy raise the landing gear.
- Continue climb following the briefed procedure.
- After takeoff Checks when established in the climb above 500 feet AGL.

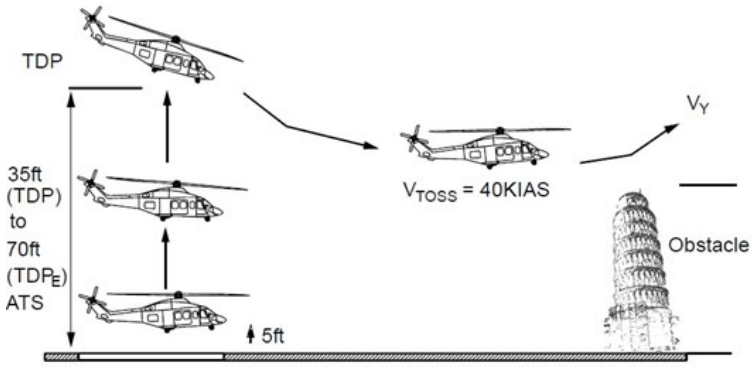
FLIGHT EVENT	PNF call	PF response
Hover & transition	'Two AP'S' Call: **"Hover checks complete,PI XXX %"** Call **"Power Set"** (Correct Value) Monitor Takeoff Call " **Speed Alive"**	Call **'Lifting'** '**Rotating'** Rotate nose down to 5, halfway through rotation increase PI to hover power +18%
At TDP	Call "**TDP"**	Call "**Continuing"**
At Vtoss	Call "**Vtoss"**	Rotate to 5 nose up
At Vy	Call "**Vy"**	Select 100% Nr
At 200Ft AGL	Call **"200"**	Set climb parameters
Vy and 200ft calls made	Select and Call:" **Gear Up, Lights Out"**	Call" **Gear Up"**
At 500 Ft AGL	Call: **"500"** Complete after takeoff checks. Call**:"** **After takeoff checklist complete"**	Call:"**After Take Off Checklist"**

GROUND LEVEL & ELEVATED HELIPAD CAT A VERTICAL TAKEOFF

6.4 t Helipad (Vertical Procedure)

On a helipad, the TDP is a point located 35 ft above the touchdown point. On the extended procedure, the TDP is 35 ft to 70 ft.

6.4 t Helipad (Vertical Procedure) Normal Take-off



GROUND LEVEL AND ELEVATED HELIPAD CAT A VERTICAL PROCEDURE.

- PF calls "**Lifting"** and lifts to the hover at 5 ft.
- PNF reports PI value as part of the hover checks.
- When hover checks are complete, increase PI within 2 seconds to a value 23% above hover power (subject to a maximum of 110%) to initiate a climb to TDP.
- PNF calls **"50"** at 50 feet (if TDP is above 50 feet) and **"TDP"** AT TDP.
- At TDP adjust attitude to 10 degrees nose down attitude in 1 second, maintain this attitude for 1 second then

recover pitch attitude to 0 degrees to climb and accelerate to Vtoss (40KIAS). Maintain collective position.

- At Vtoss adjust pitch attitude to approximately 5 degrees nose up. Maintain collective position, continue climb and accelerate to Vy.
- At Vy select Nr at 100%.
- After Vy set climb speed and adjust to climb power.
- At 200ft and Vy raise the landing gear.
- Continue climb following the briefed procedure.
- After takeoff Checks when established in the climb above 500 feet AGL.

Note: *During all vertical operations from onshore Heliports, the radio altimeter must be serviceable.*

FLIGHT EVENT	PNF call	PF response
Hover	'Two AP'S' Call: **"Hover checks complete,PI XXX %"** Call **"Power Set"** (Correct Value) Monitor Takeoff Call " **Speed Alive"**	Call **'Lifting'** '**Rotating**' Increase power to hover power +23% in two seconds
At TDP	Call " **Speed Alive"** Call "**TDP"**	Call "**Continuing"** Rotate to 10 nose down in 1 second then recover to 0 pitch attitude to continue climbing acceleration
At Vtoss	Call "**Vtoss"**	Rotate to 5 nose up
At Vy	Call "**Vy"**	Select 100% Nr
At 200Ft AGL	Call **"200"**	Set climb parameters
Vy and 200ft calls made	Select and Call:" **Gear Up,Lights Out**"	Call" **Gear Up**"
At 500 Ft AGL	Call: **"500"** Complete after takeoff checks. Call**:" After takeoff checklist complete"**	Call:"**After Take Off Checklist**"

SHORT FIELD CAT A NORMAL TAKEOFF

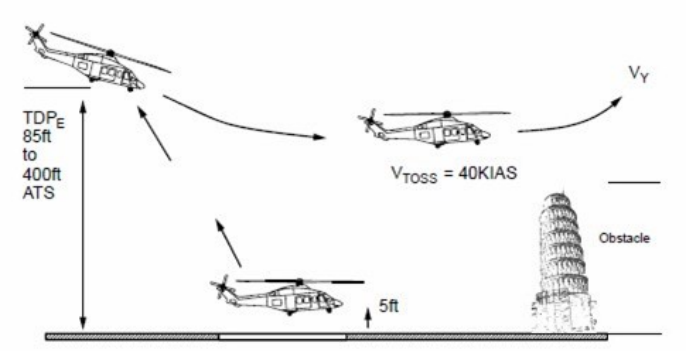
TDP is variable between 35 and 400 ft feet above helipad elevation. Vtoss is 40 KIAS.

The procedure is similar to the vertical procedure above except that PNF shall call radalt heights every 20 feet up to TDP.

The landing gear should be raised at Vy (but not below 200 ft).

BACK UP CAT A NORMAL TAKEOFF

The Cat A back up procedure is a climbing back up profile with a variable TDP between 85 and 400 ft ATS and a Vtoss of 40 KIAS.



- PF calls **"Lifting"** and lifts to the hover at 5 feet.
- PNF reports PI value as part of the hover checks.
- When hover checks are complete, increase PI within 2 seconds to a value 23% above hover power (subject to a maximum of 110%) to initiate a backwards climb to TDP, keeping the helipad in view.
- PNF calls heights every 20ft and **"TDP"** at TDP.
- At TDP adjust attitude to 10 degrees nose down attitude in 1 second, maintain this attitude for 1 second then recover pitch attitude to 0 degrees to climb and accelerate to Vtoss (40KIAS). Maintain collective position.
- At Vtoss adjust pitch attitude to approximately 5 degrees nose up. Maintain collective position, continue climb and accelerate to Vy.
- At Vy select Nr at 100%.
- After Vy set climb speed and adjust to climb power.
- At 200ft and Vy raise the landing gear.
- Continue climb following the briefed procedure.
- After takeoff Checks when established in the climb above 500 feet AGL.

Note: *During all vertical operations from onshore Heliports, the radio altimeter must be serviceable.*

CAT 'B' TAKEOFF

General

The terrain over which the helicopter is to be flown during the acceleration to Vtoss must be suitable for a forced landing. 'Suitable' means no dynamic parts of the helicopter would be damaged during any forced landing and that there would be no risk to third parties from a forced landing.

The Cat B procedure may be used when the following criteria are met:

- The cloud base and visibility must be such that in the event of an engine failure, acceleration to Vtoss may be achieved whilst manoeuvring clear of cloud and with sufficient forward visibility to permit obstacle avoidance by visual manoeuvring. In practical terms, this means a minimum cloud base of **200 ft** and minimum visibility of **800 m.**
- The single engine Height Velocity avoid area must not be penetrated.
- Performance Class 1 must be achieved by the time obstacles can no longer be avoided by visual manoeuvring and at the very latest by 200 ft above the takeoff surface.
- Observe Crosswind limitations. (45 kts demonstrated)

TAKE OFF PROCEDURE

Follow the appropriate Class 1 profile.

AFTER TAKEOFF AND GO-AROUND

General

Unless required by a specific departure procedure, the aircraft should be climbed straight ahead to at least 300 ft AGL

(day VMC) OR 500 ft AGL (night or IMC) and accelerated to at least Vy before manoeuvring.

AFTER TAKEOFF/ GO AROUND CHECKS

The checklist may be completed from memory once the aircraft is safely established in the climb (above 200 ft radalt and with a speed at or above Vy after takeoff or on a go-around).

However the checklist should not be read until the aircraft is safely established in the climb above 500 feet radalt on departure. It is particularly important that PNF monitors the flight profile effectively during IMC or night takeoffs and go-arounds. No extra calls or actions are required during this phase unless the PNF notices a deviation from the expected flight profile.

If any checklist items have been completed from memory, PNF must then consult the checklist and review it to ensure that all items have been completed correctly.

- **LDG Gear (200 FT/+VS).....UP/LTS OFF**

  Retract the gear when speed is above Vy and the aircraft is established in the climb above 200 feet. Consider leaving the gear down if there were any hard braking operations for 5 mins to cool the brakes. Confirm the landing gear does actually retract (travel light and green lights out)

- **NR/NF.....100%**
- **Tq Limiter.....As required**
- **MFD/CAS.....Check**

Procedures for engagement of AFCS coupled modes

It is important to involve both pilots in the process at all times to maintain a closed loop. PF may make coupled mode selections himself or may request PNF to make selections, in particular at times of high workload. All mode selections and deselections must be announced, and confirmed by the other pilot.

PF shall request a mode by calling **"Select (e.g. ALT)"**. PNF shall respond by selecting the desired mode and reporting **"(mode) engaged"**. PF shall state **"(mode)** engaged / armed**"** when the correct indication appears at the top of the PFD. For example:

PF ..... "ALT green"

When PF selects a mode himself, he shall announce **"Selecting (mode)"**. PNF will state **"(mode) green"** when the correct indication appears at the top of the PFD. For example:

PF ..... "Selecting ALT"
PNF ..... "ALT green"

De-selection of a mode must also be requested or announced. If applicable All Flight Director audio chimes must be acknowledged, either with the procedure above, or if an unexpected chime is heard, with a clear statement of what has changed.

USE OF AFCS COUPLED MODES ON DEPARTURE

Preset HDG mode or LNAV may be engaged and ALTA may be set once the aircraft is safely established in the climb (above 200 ft radalt with speed at or above Vy).

Crews should make use of ALTA whenever cleared to a new altitude or flight level remembering to confirm that the new desired altitude is correctly displayed on both PFDs.

- To couple FMS lateral navigation (LNAV) to the flight director, select HSI on the PFD and FMS1 or FMS2 (by pressing LNAV on the DCP) then press the NAV key on the flight director Guidance Controller.
- When the FD is coupled to the FMS the Course arrow and FMS 1 / 2 source indicator on the PFD HSI will turn magenta (from cyan) and the active leg on the MAP page will turn magenta (from cyan).

(02.01.08)- Noise Abatement

The following noise levels comply with ICAO Annex 16, Chapter 8, "NOISE requirement" according to TCDSN EASA.R.006.

Model: AW139 Engine Pratt and Whitney PT6C-67C, Gross Weight **6400 kg**			
Configuration	Level Flyover (Overflight) EPNL (EPNdB)	Take Off EPNL (EPNdB)	Approach EPNL (EPNdB)
Clean aircraft No external kits installed	**100% NR**	**100% NR**	**100% NR**
	89.8	90.5	93.0
(Supplement 9) Model: AW139 Engine Pratt and Whitney PT6C-67C, Gross Weight **6400 kg**			
Clean aircraft No external kits installed	-	**102% NR**	**102% NR**
	-	91.0	93.5
(Supplement 9) Model: AW139 Engine Pratt and Whitney PT6C-67C, Gross Weight **6800 kg**			
Clean aircraft No external kits installed	-	**102% NR**	**102% NR**
	-	90.8	94.6

General

- Safety has priority over noise abatement
- Generally a maximum distance from, or altitude above noise sensitive areas are the most effective means of noise abatement.
- Control inputs should be evenly made.
- The noise footprint is lower on the right side of the helicopter than the left.
- The noise footprint is greater with a tailwind than with a headwind.
- Local Noise Abatement procedures are described in OM-C

During Take-off

- Following take-off, airspeed for best rate of climb should be set.
- If possible, a climb rate of 1300 ft/min should be aimed for.
- The departure should be planned such that noise sensitive areas are avoided.

En Route

- A height of at least 2000 ft AGL should be maintained.
- If 2000 ft AGL cannot be maintained, the airspeed shall be limited to 120 KIAS.
- If a change of direction needs to be carried out, this should be done with the noise sensitive area on the inside of the turn.

During the Approach

The approach to decision point should be made as steep as possible, but as shallow as necessary i.a.w. the stabilised approach criteria. Once the noise sensitive area has been left, a transition to procedures which accord with CAT A or B shall be made.

(02.01.09)- In-flight / Cruise / Descent

Revizyon No: 7 Revizyon Tarihi: 21.06.2020
AMC1 ORO.GEN.110(f)(h) / RFM

CRUISE AND DESCENT PROCEDURES

The checklist should be completed until safely established in the climb or cruise. It is preferable that the autopilot is coupled to allow better overall management of the aircraft.

- **FUEL..... CHECK**

- Confirm fuel usage, fuel at destination and fuel at alternate are in accordance with planned figures, or if not, are still sufficient. Compare FMS fuel total with fuel management panel contents and update if necessary.

- **ENG's..... CHECK**
  - At least every half hour select the PWR PLANT page and confirm all indications are in the normal operating range and no engine matching abnormalities are present.

- **Altimeters (TL)..... QNE X/CK**
  - Both pilots set QNH unless operating above transition altitude when 1013 is set.
  - Standby BARALT..... QNH (regional or field as appropriate)
  - Crosscheck Altimeters. Both pilots report indicated altitude and subscale setting.
  - Radalt Bugs.....Nominally on passing 1000 FEET set "1000'feet". Prior to descent, set 200 FEET.
- **Flight/Nav/Instruments.....CHECK**

USE OF TCAS

General
While normal ATC procedures and the "see and avoid" principle are the primary means of ensuring aircraft separation, Traffic Alerting or Advisory Systems provide flight crew with an independent backup to visual search and the Air Traffic system by alerting them to collision hazards.

Operational Use
ATC procedures and the "see and avoid" principle will continue to be the primary means of ensuring aircraft separation, but TCA adds a significant backup for collision avoidance. If intruder traffic is observed on TCAS that might develop into a threat (e.g. traffic on a constant bearing and at similar altitude, flight crew should start a visual search for the threat. If the aircraft is not visible, advice should be sought from ATC. Pilots should not manoeuvre solely on the basis of a TA unless the potential threat is believed to pose a definite risk of collision, in which case they should manoeuvre as necessary and in good time. If the manoeuvre involves deviation from the clearance, ATC must be advised as soon as possible and the aircraft must be returned to the original flight path as soon as it is safe and practical to do so.

USE OF EPGWS

1. TAWS PFD and MFD display……SET as required.
2. TAWS map range…… Set as required by rotating the CCB knob
3. TAWS functions…… .Set as required on the MCDUMENU/TAWS page.
4. Unexpected terrain or obstacle awareness caution alert occurs in flight
   - Verify aircraft flight path and correct as necessary

   Note 1: *"Warnings" are those EPGWS alerts that give a red "Pull Up" message on the PFD. EPGWS Cautions do not require immediate action.*

5. Unexpected terrain or obstacle awareness warning alert occurs in flight

   Unless visual with the surface and able to determine the aircraft flight path is safe, IMMEDIATELY initiate manoeuvre to provide maximum terrain or obstacle clearance, until all alerts cease.

   Caution:*The highest and lowest terrain elevation, displayed in the left corner of the PFD/MFD are calculated Geometric Altitude and NOT corrected barometric altitude. The values represent the true height level (AMSL) in hundredths of feet.*

   Note 2*: The audio alerts, visual cautions and warnings may be inhibited on the TAWS page of the MCDU as follows:*

- *Selecting TERR INHIB a white TAWS INHIB message illuminates on the PFD/MFD. This mode inhibits the terrain and obstacle aural alerts and visual cautions and warnings while the terrain display remains operational.*

- *Selecting MUTE, a green TAWS AUDIO MUTE advisory illuminates on CAS. This mode inhibits the terrain and obstacle audio alerts for 5 minutes while the visual cautions, warnings remain active. The terrain and obstacle audio alerts are restored immediately by deselecting MUTE.*

When any MFD format, other than the MAP page, is being used and a TAWS alert occurs the MAP soft key is automatically armed to the onside Cursor Control to allow quick access to the MAP page. Pressing the ENTER button on the CCD will cause the MAP page to display and TAWS to be automatically selected for display on the MFD map and the map range will be set to 5 NM, or 2.5 NM if TAWS in low altitude mode.

(02.01.10)- Approach / Landing preparation and Briefing

Revizyon No: 7 Revizyon Tarihi: 21.06.2020

AMC1 ORO.GEN.110(f)(h)

APPROACH BRIEFINGS

As for takeoff briefs described. Abbreviated briefs will normally be used for approach and landing. Where the abbreviated briefs do not give the necessary degree of information or a more detailed brief is necessary, for example at an unfamiliar airfield, PF must give a full brief outlining his intentions prior to landing.

These briefs may be given at a convenient time before the approach (**10 NM preferable** in KAAN AIR) , provided that it is completed before the initial approach segment commences. It should be completed in level flight, preferably with FD coupled modes. The PF may hand over control of the aircraft for the purposes of the briefing. A full IFR approach brief will be given by PF from the Approach Plate checking off the points in the order they appear on the plate. This brief shall include the following points:

- Type of approach.
- FD/FMS modes and speeds.
- STAR (if applicable).
- Procedural approach.
- Navaids.
- FAT.
- Crossing altitudes.
- Timing to be used, if applicable.
- Minima.
- Actions at minima.
- Weather.
- Runway elevation.
- Go-around procedure.
- Intentions after go-around.

Example abbreviated briefs are given in the following paragraphs.

IFR Approach Brief by PF, Abbreviated Brief

- ILS [or other approach] to Runway XX at……..,
- FAT is……°, DA/MDA is…..ft, minimum RVR …... metres.
- The RVR is above minimum and there is no approach ban. (If applicable)
- [I will fly a coupled approach /a flight director approach/ raw data].
- Go-around procedure as on the plate

VFR Cat B Brief by PF, Abbreviated Brief

- Standard CAT B approach Runway XX
- Go-around ……with Vtoss 50 knots.

APPROACH CHECKS

- **Altimeters QNHX/CK**

- Confirm the correct QNH is set for the descent. Crossceck altimeters agree +_ 100ft

- **MFD Set Powerplant**
- **Flight/Nav Instruments Ck Set**
  - Confirm that the navaids are tuned, identified and set correctly for the type of approach to be flown.
- **DH Set As Required**
- **Approach Briefing Performed**

Complete the approach briefing from the checklist below.

- **Approach Type/Use of FD/Speeds**
  - Type of approach
  - AP/FD modes and speeds to be used during the arrival, approach and on final.
- **STAR/Procedural sector**
  - STAR if applicable up to the point where the procedure starts, including tracks, radials, altitudes, descents and MSA.
  - Procedural approach up to the final approach course, including tracks, radials, altitudes, use of HSI and presetting of approach mode.
- **FAT/crossing altitude/timing**
  - Final approach track(FAT) AND TIME FOR THE fat TO BE SELECTED.
  - Crossing altitude over the FAF/OM and or non precision step down altitudes
  - Timing to be used, if applicable.
- **Minima (DA/MDA/MAPt) and weather**
  - Minima including the missed approach point and circling height in case of transfer to another approach.
  - Confirm there is no approach ban.
- **Runway elevation**
  - Confirm the runway elevation
- **Go Around Procedure/after go around**
  - Go around procedure, AP/CPL modes to be used and navigation settings required Intentions after go-around(further approach/diversion).

PF/PNF duties and calls are in accordance with the following tables:

Precision Approach: duties, calls and responses – ILS		
Approach phase	**PNF**	**PF**
Initial approach Checks (as required, at PF's request)	Completes and calls. 'Initials complete'	Acknowledges as required and monitors 'Initials complete'
Localiser indicating	'Localiser Alive '	'Localiser Alive'
Localiser half scale	'Half scale' Completes and calls final approach checks (no prompt from PF). 'Finals complete'	'Half scale' Acknowledges as required and monitors 'Finals complete'
From half scale localiser to 100ft above DA	Monitors ILS Warns if approaching half scale LLZ or G/S	Fly ILS Acknowledges approaching half scale
G/S Indicating	'G/S active'	'G/S active'
Final approach fix	'Altitude checks at...' (appropriate DME or fix) Correcting actions as required	'Altitude (….) feet'
500 ft above DA	'500 above'	'500 above'
100 ft above DA	'100 above' watches for required visual references and	'100 above' Continues to fly ILS

	monitors ILS	
At DA		'Decide'
	'Visual' or 'Continue' or 'Nothing seen, go around'	'continue' or....'going around'
Below DA (landing)	Monitors visual profile and ILS. Calls IAS and radalt height.	Flies visual approach and lands.

Approach: duties, calls and responses – Non-Precision Approach		
Approach phase	**PNF**	**PF**
Initial approach Checks (as required, at PF's request)	Completes and calls. 'Initials complete'	Acknowledges as required and monitors 'Initials complete'
Within 5 degrees of final approach track or half scale localiser	'Final Approach track established' Completes and calls final approach checks (no prompt from PF). 'Finals complete'	'Final approach track established' Acknowledges as required and monitors 'Finals complete'
From FAT established to 100 ft above MDA	Monitors instrument approach Warns if approaching +/- 5 degrees or half scale LLZ	Fly instrument approach Acknowledges approaching 5 degrees or half scale LLZ
Final Descent Point	'Descend'	'Descending'
Final approach fix	'Altitude checks at...' (appropriate DME or fix) Start clock if applicable Monitors timing thereafter	'Altitude (….) feet'
500 ft above MDA/DA	'500 above'	'500 above'
100 ft above MDA/DA	'100 above' watches for required visual references and monitors instrument approach and timing if required visual references seen, calls 'Visual' & Clock reference	'100 above' Continues to fly Instrument approach
At MDA/DA/MAP	'Visual' or 'Continue' or 'Nothing seen, go around'	'Visual Landing' or….'going around'
	Monitors visual profile Calls IAS and radalt height.	Flies visual approach and lands.

(02.01.11)- Go-Around

Revizyon No: 7 Revizyon Tarihi: 21.06.2020

ORO.GEN.110(h) / AMC1 ORO.GEN.110(f)(h) / Operator Procedure / RFM

GO-AROUND PROCEDURES

MANUAL PROCEDURE

- Increase collective to obtain takeoff power and rotate to achieve a standard climb
- When established in a positive climb PNF shall announce **"Climbing"**
- Select the gear up when a positive climb is achieved
- Couple the flight director as required (Speed>60kts)

FLIGHT EVENT	PNF	PF
Go-around required	Call: **"Go-around"** (When PNF decides that a go-around is necessary)	Call: **"Going around"**. Set takeoff power and rotate to achieve a standard climb.
Positive climb established	Call: **"Climbing" Positive Rate**	Command: **"Gear up"**
500 AGL	Call: **"500"** Perform and announce: **"Go-around checks complete"**	Command: **"Go-around checks"**

COUPLED 'GO AROUND'PROCEDURE

NOTE : AIRSPEED > 60 KTS

FLIGHT EVENT	PNF	PF
Go-around required	Call: **"Go-around"** (When PNF decides that a go-around is necessary)	Call: **"Going around"**. Activate Go Around button
Positive climb established	Call: **"Climbing" Positive Rate**	Command: **"Gear up"**
500 AGL	Call: **"500"** Perform and announce: **"Go-around checks complete"**	Command: **"Go-around checks"**

(02.01.12)- Normal Landing

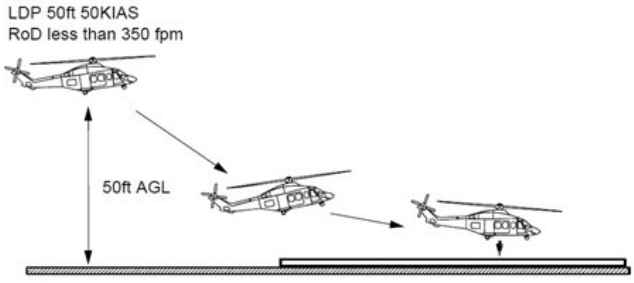
Revizyon No: 7 Revizyon Tarihi: 21.06.2020

AMC1 ORO.GEN.110(f)(h) / RFM

Caution: *During landings and operations near the ground, avoid pitch attitudes greater than 15 degrees nose up below 15ft AGL, to avoid the tail from contacting the ground.*

Normal procedure calls during landing.

Clear Area Normal Landing



- Select NR 102%.
- Establish approach to pass 200 ft at a rate of descent of no more than 500 ft/min.
- PNF to call **"LDP"**
- PF to call **'Continuing'**.
- From LDP, perform a direct approach with steady deceleration down to HIGE.
- Proceed with normal landing.
- Complete 'After Landing Checks'.

The normal procedure calls and responses are given in the table below.

Type of landing	PNF call	PF response
All visual landings Onshore	500ft LDP	Checked Landing
All landings when pitch attitude exceeds +15 degrees below 15 ft	PITCH	Checked

BEFORE LANDING CHECKS

Refer to RFM or NCL.

These checks shall be called for at the latest by **3 NM** to run to the destination on a visual approach. On an instrument approach they shall be called for at the latest by 1 NM to run to the FAF, 1 dot GS deviation or when within+- 5 degrees of the FAT on a non precision approach if unable to determine the distance to the FAF.

(02.01.13)- Shutdown / Post-flight Check

Revizyon No: 7 Revizyon Tarihi: 21.06.2020

AMC1 ORO.GEN.110(f)(h) / RFM

Refer to RFM or NCL.

(02.02)- Crew Communication

Revizyon No: 9 Revizyon Tarihi: 15.08.2022

AMC1 ORO.GEN.110(f)(h) / RFM / Operator Procedure

Briefings/Standard Calls

Runway Take Off

- This will be a CAT A clear area take off on Taxiway Mike parallel RWY 36R, followed by a right turn to Antenna climbing to 1500ft
- You will call TDP at 30 ft / 50 Kt VTOSS
- Any major malfunction before TDP I will REJECT
- Any major malfunctions after TDP I will CONTINUE up to safe altitude. After that I will advise.
- I may REJECT after passing TDP if I have sufficient space to land on the runway, I will advise.
- There will be no engine shut down before reaching safe altitude. If it's not a confirmed Fire.
- All emergencies will be handled according to QRH reaching safe altitude or back on ground.
- Normal operating procedures will apply. Do you have any questions?

Arrival and Landing Briefing

- Arrival will be at the '2.5'- mile point, 1000 ft RADALT & 90kts IAS, descending to our Gate of 1 NM / 550 ft / 55 kt GS with RHT.
- It will be a CAT A Offshore Helideck Descending approach with an LDP of 170 ft (HH+50 ft) and 15 GS
- Any major malfunction before LDP I will REJECT to the "Left or Right" and climb to safe altitude.
- Any malfunction after LDP my intension will be to LAND, if the landing is **delayed** after LDP call, I will call LANDING when there is no possibilities to G/A.

HELIDECK Takeoff

- This will be an Offshore CAT A helideck take off in the direction of "140 degrees / Ship heading
- Call TDP at **20 ft**, Rotation at **30 ft** and VTOSS at **40 Kts**
- Any major malfunction before TDP I will REJECT
- Any major malfunctions after TDP I will CONTINUE up to safe altitude. After that I will advise.
- There will be no engine shut down before reaching safe altitude. If it is not a confirmed Fire.
- All emergencies will be handled according to QRH reaching safe altitude or landing back on ground.
- Departure straight forward climbing 500 ft after that left/right turn continue climbing XXXX ft or as directed.
- Do you have any questions?

Arrival and Landing Brief (Airport)

- We will establish right/left base to Taxiway M parallel RWY '36R' or '36L'
- It will be a Cat A Clear Area landing on hard surface with an LDP at 50 ft /50 kt / <350' ROD
- We are committed to the RWY when we have the RWY in sight.
- All major malfunctions will be handled after landing if it is not a confirmed fire.

Radio CALLS

- Check Antalya ATIS on **118.275**
- Call Antalya Delivery on **121.65**

Delivery good morning this is TC-Hxx with information Romeo, request start up for a VFR flight to Yavuz Drillship, we are 8 POB on board, initial altitude 1500 ft.

(After starting)

Antalya Delivery, TC-Hxx Request TAXI instructions for Taxiway MIKE Delivery: Contact Tower on **126.1**

Antalya Tower

At MIKE taxiway call tower **126.1** for T/O clearance.

After T/O on the way to Antenna, Tower calls you to switch over to Approach on **124.35** or you call at Antenna.

When calling approach

- TC-Hxx / Squawk 1234 / Approaching Antenna/ En-route to Yavuz Drillship / ETA XX:XX

Ercan Radar

When reaching 20 NM outbound, AYT APP will call you to contact ERCAN Radar on **126.7**

- Ercan Radar, Gunaydin, This TC-Hxx, AW139, 8 Souls on board, we are at RAD / DIST, VMC, SQUAK 1234, en-route to Yavuz Drillship, ETA XX:XX

Ercan will then advice you to call FINAL or when you have two-way comm.

First call to RIG / Ship

- TC-Hxx: Yavuz Radio, Gunaydin, this TC-Hxx
- Yavuz Radio: Go ahead
- TC-Hxx:
- En-route to your vessel, ETA XX:XX
- We have 6 passengers for you
- You have the flight watch
- Request weather and returns (POB nr on back route)

Yavuz Radio: "That is copied. I have 5 passengers for you (total weight XXXX kg) Helideck status / Do you require any fuel?"

Once established with Yavuz, call ERCAN Radar

- ERCAN Radar, this is TC-Hxx, we have two way com with Yavuz, will call you back when airborne.
- You will then, call Yavuz HLO for green deck

- TC-Hxx: "Yavuz HLO, this is TC-Hxx, request Green Deck?"
- Yavuz HLO: "TC-Hxx, you have green deck.

Departing from Yavuz

- Yavuz Radio this is TC-Hxx
- ETA Antalya, XX:XX
- Continue the flight watch. (Then you call Ercan Radar)
- Reg / Squawk / Next waypoint + ETA / Altitude.

(Once two-way comm is established with Ercan, call Yavuz Radio)

- Yavuz Radio TC-Hxx, we got two-way contact with Ercan, stand down on Flight Watch.

PASSENGER BRIEFING / CABIN CALLS

Before Taxi

- Welcome on this flight to "Yavuz" Drillship, it will take 1:20 min.
- Please remain seated with your seatbelt fastened and your safety equipment on during the whole flight.
- Make yourself familiar with the emergency exits.
- Emergency cards can be found under your seats. Please do not hesitate to tap us on the shoulder should you require anything.
- Enjoy the flight and we will call you back before landing

Landing to Airport/ RIG/ SHIP

- Ladies and gentlemen, we will land within the next 10 minutes.
- Please remain seated with your seatbelt fastened and safety equipment.
- HLO will open the door and guide you out.
- On behalf of KAAN AIR, we wish you a great time Onshore/ Offshore, and we look forward to flying with you in the future.

(02.03)- EFB Normal Procedures

Revizyon No: 10 Revizyon Tarihi: 11.01.2023

SPA.EFB.100

EFB Normal procedures are detailed explained in **KAAN-EFB-01** EFB Electronic Flight Bag Procedures Manual, is at Appendices section of OM-A Operations Manual.

NORMAL PROCEDURES

1.1 Pre-Flight

On first entry to cockpit:

- Power #1 EFB..... ON
- Power #2 EFB..... ON
- Check Both EFB charge..... >75%

** If the battery is <85%, defer any updates until the EFB is connected and charging.*

- EFB Checklist (ECL}..... Selected as required
- Document status update check..... CHECK
- #1 EFB set as Primary..... PROGRAMMED
- #2 EFB set as Secondary..... PROGRAMMED

** Program both EFBs with origin, destination, alternate(s) and emergency return approach set up. Both EFBs are to be identically programmed.*

1.2 Pre-Start

On preflight, after power is available:

- Set both EFBs to AIRPLANE MODE..... ACCOMPLISHED
- Close Unnecessary Running Application Procedures..... ACCOMPLISHED
- #1 and#2 EFB set as Electronic Charts..... ACCOMPLISHED

1.3 Taxi

While moving on the ground, the PM will have custody of the EFB.

1.4 Before Take-off

Take-off Operation:

- Both EFB..... Secured

1.5 Climb, Cruise / En-Route

Only one pilot will use the EFB at a time to ensure that at least one pilot is concentrated on the flight and that both pilots are not "heads down". All pilots may use EFB with cross-check at a time, but PF is responsible to take all aircraft controls basically.

#1 EFB unit may be used to annotate flight plans, weather, NOTAMs and complete FLT PLAN Cover Sheets as required. Reviewing of text data or company manuals may take considerable attention away from the progress of the flight.

1.6 Descent

- #1 EFB set as Primary..... PROGRAMMED
- #2 EFB set as Secondary..... PROGRAMMED

- Below 10,000 ft., both EFBs..... SECURED

Program both EFBs with approach chart and a terminal chart before descending below 10.000 feet. Both EFBs are to be identically programmed.

1.7 Approach

In order to avoid crew distraction, it is strongly recommended that the display not be manipulated more than necessary, especially during approach.

1.8 Before Landing

The EFBs must be checked for security in the correct stowing location in viewable stowage. The EFBs must remain secure until completion of the after-landing check.

1.9 After Landing

During taxi operations, only one pilot must be directly referencing the Airport Diagram. The crew must avoid focusing exclusively on the EFB, but also maintain an adequate lookout.

1.10 Shutdown Securing

- Remove both EFBs from AIRPLANE MODE..... ACCOMPLISHED
- Battery Charge..... CHECK

**Confirm battery usage reflects EFB use. If there is a battery problem, the EFB must be returned to flight operations for investigation. When the EFB battery is fully charged, the battery will be good for 8 to 10 hours of continuous use.*

- Set #1 EFB..... OFF
- Set #2 EFB..... OFF

**Report any anomalies noticed throughout the flight.*

TABLE OF CONTENTS

03-ABNORMAL AND/OR EMERGENCY PROCEDURES

AMC3 ORO.MLR.100

03.01-Abnormal and/or Emergency Procedures and duties assigned to the crew, the appropriate checklists, the system for their use and a statement covering the necessary coordination procedures between flight and cabin/other crew members

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC1 ORO.GEN.110(f)(h)

Rotorcraft Flight Manual

INTRODUCTION

This section contains the procedures that must be performed in the event of an emergency or malfunction. These procedures are based on experience acquired in the operation of helicopters, in general, and on flight tests conducted on this particular helicopter type.

The procedures used in each actual emergency or malfunction must result from consideration of the complete situation. Multiple emergencies or malfunctions may require departure from normal corrective procedures detailed in this section.

All corrective action procedures listed herein assume the pilot gives first priority to aircraft control and safe flight path.

PROCEDURES LOGIC

The majority of the Emergency and Malfunction procedures that follow are presented in the form of logic trees (flow charts). These flow charts have been formulated based on analysis and test of the cockpit indications that would be available to the flight crew following the failures/ malfunctions that are included in this section.

For complex failures/ malfunctions, cockpit indications coupled with the answers to "Yes/No" type questions (as indicated on the charts) should enable the flight crew to analyse the type of failure/malfunction that has occurred, the branch of the "tree" that should be followed and the corrective action that should be taken.

In order to analyse some types of failures/malfunctions, answers to "+", "IF", "AND" and "OR" statements may be required. In these cases, the statements are presented in bold text ("**+**", "**IF**", "**AND**", "**OR**"), as an attention getting device. It is stressed that attention should be paid to this symbology to avoid a mistake in the emergency/malfunction analysis and subsequent incorrect crew action. **Required flow chart crew** actions are typed in bold.

SAFE OEI FLIGHT

In general safe OEI flight is defined to mean

(1) a sustainable airspeed of not less than 50 KIAS,
(2) the ability to obtain a positive rate of climb at acceptable power levels and
(3) an altitude which provides sufficient clearance from the ground/obstacles so that required manoeuvring can be reasonably achieved.

At crew discretion, other procedural checks/actions may be carried out while these conditions are being established.

The basic principle of every procedure has to be:

- Maintain control of the helicopter
- Analyse the situation
- Carry out the correct actions

Every procedure shall be reflect the principles of Human Factors – HF, and Crew Resource Management – CRM.

If a procedure is written in the emergency checklist of the helicopter or the RFM, this shall be followed.

An entry into the technical logbook is to be made following each emergency or system failure.

(03.01.01)- Crew In-capacitation

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC1 ORO.GEN.110(f)(h)

Operator Procedure

Indications of incapacitation:

- The crew member does not react when spoken to.
- The crew member answers out of context (confused answer).
- The crew member responds in context, but fails to carry out the procedure.
- The crew member makes illogical decisions and deviates from standard procedures.

Immediate measures in the event of crew incapacitation:

1. Control of the helicopter

- Assumption of control ("I have control")
- Take whatever action is necessary in order to deal with the immediate danger.
- Climb to a safe altitude and engage the AFCS
- Abort the approach (if not stabilised) and carry out the missed approach procedure.

2. Request assistance

- Declare an emergency – to the relevant air traffic service and, if present, other crew members.

3. Assess the situation

- Determine the status of the flight
- What is the fuel state?
- Is the destination the best decision?
- Assess weather factors (avoid flight into IMC, if possible).

4. Secure the incapacitated crew member

- Request help from other crew members if possible.
- If possible, move the seat back into the furthest rear position and lock it.
- Secure the incapacitated crew member with their seat belt.

Once the incapacitated crew member does not pose an imminent danger for the flight:

Flight safety is paramount

5. Discuss the next actions

a) For flights to offshore installations, abort the flight and return to an aerodrome on land.

b) According to the condition of the incapacitated person, a landing at an offshore installation is possible, when in the immediate vicinity of the installation.

c) For flights on land, land at the next convenient aerodrome.

In any event, inform the air traffic services and other crew members of intentions.

(03.01.02)- Fire and Smoke Drills

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC1 ORO.GEN.110(f)(h)

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

No single set of detailed procedures can address all the fire scenarios that are possible. The **most urgent action** is to get the aircraft **shut down** and **evacuated immediately.**

03.01.02.01 Fire and Smoke on the Ground

At the first indication of fire and smoke on the ground:

03.01.02.01.01 In the Hover:

- Set the helicopter down
- Declare an emergency
- Advise passengers (if on board) to remain seated and await further instructions
- Evacuate the helicopter at the earliest opportunity

03.01.02.02 Fire and Smoke During the Flight

- Carry out the emergency procedure according to the emergency checklist
- Declare an emergency
- Advise the passengers
- Evacuate the helicopter after landing

(03.01.03)- Flight in Thunderstorms - Lightning

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC1 ORO.GEN.110(f)(h)

If it is suspected that the rotorcraft has been struck by lightning, verify the state of the following systems for unintended change and confirm their functionality:
— barometric setting and displayed altitude
— selected altitude
— selected navigational aid
— selected course
— selected heading
— selected decision height
— selected radio frequencies (including radio comms transmission check).

Flight in thunderstorm cells and storm zones is fundamentally to be avoided. If it is not possible to avoid entry into such an area or cell, or the route passes in the immediate vicinity of such and diversion is not possible, the following procedure shall be followed:

- Upon approaching an area affected by thunderstorms, ensure that all persons on board have their seat belt securely fastened and all loose objects are safely stowed.
- On a multi-crew flight, one pilot steers the aircraft and pays attention to the attitude of the aircraft independent of other influences. The other pilot (PM) pays attention to the altitude, route and all other instruments, constantly giving the Pilot Flying corrective information to facilitate **leaving the thunderstorm zone** at the earliest opportunity and at a safe altitude.
- The airspeed is to be established such that **VNE is avoided**.
- The AFCS should be engaged. **The IAS mode should not be set.**
- All systems which **protect against icing** shall be switched **ON**.
- **Maximum lightening** in the cockpit shall be used in order to reduce the risk of glare from lightening.

In the event of a lightning strike, the following is to be considered:

During the flight:

- Check all radios, navigation devices and weather radar.

After landing:
- The lightning strike shall be entered in the technical logbook
- Compass deviation shall be assessed
- Cells shall be inspected for damage
- Aerials and pitot tubes are to be inspected
- All radio and navigation devices are to be checked.

(03.01.04)- Distress Communications and Alerting ATC to Emergencies

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC1 ORO.GEN.110(f)(h)

Every observation of a danger for air traffic shall be reported without delay to the competent aviation authorities. Each report must contain all details which are pertinent for air safety.

03.01.04.01 **Emergency Call – MAYDAY (imminent danger)**

Emergency calls shall be made on the frequency in use or the emergency frequency (121.50).

The emergency call shall be initiated as follows:

- Initiation using the emergency term MAYDAY, preferably repeated three times.
- the station called
- own call sign

The emergency message which follows shall contain the following information:

- Nature of the emergency
- The intentions of the crew
- Nature of assistance required
- Information as to position, course, and altitude

An emergency call shall not be unduly delayed, even if its origin is based on an error or misapprehension. The call can be withdrawn.

If no discrete squawk has been set, the transponder shall be set to the emergency code 7700.

If the radio has failed (or this is suspected), an emergency message shall be sent by setting the transponder code 7600.

03.01.04.02 **Urgency Call – PAN-PAN**

Pan-Pan is used for urgency messages, which concern the safety of an aircraft, another craft or person.

The urgency call shall contain the following information:

- Initiation using the urgency term PAN-PAN (preferably repeated three times).
- the station called
- own call sign

The urgency message which follows shall contain the following information:
- Nature of the urgency
- Further information which may be important for providing assistance
- Intentions of the Commander, where appropriate
- Information as to position, course, and altitude

(03.01.05)- Engine Failure(s)

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC1 ORO.GEN.110(f)(h)

In the event of engine failure of one or both engines, a safe flight configuration must be achieved.

03.01.05.01 Recognising an Engine Failure

If one or both engines fail, the crew can verify the condition by the following indications and initiate the relevant emergency procedure:

- Illumination of the CAS (Crew Alerting System) and the MWL (Master Warning Light)
- An audio signal together with the oral warning "Engine 1(2) Out". This is activated as soon as the NG falls below 34,3%.
- In the event of a single engine failure, a significant torque split will be indicated.
- In the event of a dual engine failure, the torque indication of both engines will fall to 0
- Depending on the collective pitch position at the time of the engine failure, a reduction in rotor RPM is possible. This reduction in rotor RPM will be accompanied by a tendency of the helicopter to yaw around its vertical axis.

03.01.05.02 Single Engine Failure

In the event of an engine failure, a safe single engine flight configuration is to be established.

- Following an engine failure, the collective must be reduced as necessary to maintain the rotor RPM within the operating limits.
- A suitable airspeed, which shall not be less than 50 KIAS, shall be established, landing excepted.
- A suitable altitude is to be flown, such that a safe margin above ground and obstacles can be flown. Account must be taken of the reduced climb performance of the helicopter in single engine flight.
- The flight shall proceed to the next convenient aerodrome and a running landing shall be carried out.

Offshore flights shall only carry out a landing at an installation with a helideck if return flight with the remaining fuel reserves is not possible.

03.01.05.03 Dual Engine Failure

Depending on collective pitch position at the time of engine failure, a rapid reduction in rotor RPM can be expected. Following a double engine failure, either sequentially or simultaneously, an **autorotation is to be initiated** without delay.

03.01.05.04 Entry in **Autorotation**

Depending on collective pitch and airspeed at the time, a simultaneous engine failure will result in a large and very rapid drop in rotor speed (NR) requiring a large and rapid collective pitch adjustment in order to recover and maintain rotor speed within the Power Off range.

It is imperative that these adjustment be made quickly and decisively. If the failure occurs at considerable height above ground level (AGL), it is possible that sufficient time will be available for attempting an engine re-start (assuming that the cause of the failure can be rapidly analysed).

Assuming an average autorotative sink rate of 2500 feet per minute, a minimum AGL height of 3000 to 4000 feet would be required to provide sufficient time to complete the re-start procedures.

In order to arrest the reduction in rotor RPM, collective pitch must be reduced immediately. Simultaneous the attitude of the helicopter must be stabilised. Once the RPM and aircraft attitude have been stabilized, an airspeed is to be set which assures reaching a suitable landing site. This speed should be between 80 KIAS (minimum rate of descent speed) and 100 KIAS (best range speed).

SINGLE ENGINE FAILURE IN HOVER OGE FLYAWAY PROCEDURE
The height loss during a single engine failure flyaway for combinations of weight, altitude, temperature and headwind component conditions is shown in RFM Figure 4-43 for weights up to 6400 kg. (For aircraft configured for operation between 6400 kg and 6800 kg see Supplement 50).

The chart does not include any clearance height. If the hover height is greater than the height loss plus the clearance

height required (15 ft, (5 m) minimum) then a flyaway capability exists and the Flyaway Procedure should be followed.

The Headwind Component correction incorporated in the graph has already been factored by 50%, no further correction is required. The height loss is valid for rotor speeds of 100 %NR or 102 %NR and provided the flyaway manoeuvre is initiated within 1 second from engine failure recognition.

Note
If the helicopter weight, at the time of engine failure, is less or equal to the Hover OGE 2.5 min OEI weight an engine failure in the hover will result in no height loss provided that the pilot does not intervene on the flight controls.

FLYAWAY PROCEDURE
1. **Collective/Cyclic control** — Rotate nose down in 1 second to an attitude of -20°. Recover pitch attitude to 5° nose up in approximately 5 seconds. Maintain this attitude while using the collective to droop the NR to a minimum of 90% NR, if necessary, to arrest the descent.
2. **Acceleration** — Maintain pitch attitude at 5° nose up and accelerate to VTOSS (40 KIAS).
3. **At VTOSS** — When the aircraft has achieved VTOSS (40 KIAS) and a positive rate of climb lower collective to recover NR to 100%, continue climb.
4. **Climb** — Continue climb and accelerate to Vy or as required.

Note
Following the flyaway procedure the height loss indicated on chart Figure 4-42, for given ambient condition and aircraft weight, guarantees that VTOSS (40 KIAS) will be achieved and, after accelerating to Vy, a subsequent minimum Rate Of Climb of 150 fpm is assured.

(03.01.06)- System Failures

Revizyon No: 11 Revizyon Tarihi: 24.06.2023
AMC1 ORO.GEN.110(f)(h)

In cases of AFCS failure, the emergency checklist shall be followed.

Weather Radar - WX P660
According to Supplement 14

DOUBLE DC GENERATOR FAILURE

The following assumes the Double DC generator Failure procedures, presented in Section 3 of the Basic Manual, have been followed and a double DC generator failure is confirmed.

CAUTION
Ensure that the Weather Radar system is switched OFF.

Active Vibration Control System
According to Supplement 57

ELECTRICAL SYSTEM FAILURE

After failure of the DC Non Essential (NON ESS) bus the AVCS system is automatically switched off. An increase in aircraft vibration level may be experienced.

EPIC Software Phase 7 Spesific Functions
According to Supplement 79

ADS-B TRANSPONDER FAILURE

Malfunction of the ADS-B Transponder (if fitted) will be indicated by an amber MSG annunciation on the PFD and one of the following white messages in the MCDU Scratchpad:

— When the ADS-B transponder is selected ON, but is not transmitting

'ADS-B UNAVAILABLE'	due to data not available or the ADS-B transponder has failed.
'ADS-B MODE CHANGE FAIL'	— When the ADS-B is selected to ON or to OFF and the transponder data is valid but the transponder fails to change/respond or the system is trying to transfer from an ADS-B enabled transponder to a non ADS-B enabled transponder.

In case of an ADS-B Transponder failure contact ATC and refer to the applicable operating procedures.

EGPWS MK XXII-030 EMERGENCY AND MALFUNCTION PROCEDURES
According to Supplement 81

Note

When any MFD format, other than the MAP page, is being used and a TAWS alert occurs the MAP soft key is automatically armed to the on-side Cursor Control to allow quick access to the MAP page. Pressing the ENTER button on the CCD will cause the MAP page to display and TAWS to be automatically selected for display on the MFD map and the map range will be set to 5 nm, or 2.5 nm if TAWS in low altitude mode.

Note

If a simultaneous TAWS and POWER PLANT alert occur, the priority for arming the MAP or PWR PLANT soft key on the MFD is as follows (BOLD characters identify message with highest priority):

TAWS	PWR PLANT
WARNING	WARNING
WARNING	CAUTION
CAUTION	**WARNING**
CAUTION	CAUTION

Note

Aural messages from the helicopter caution and warning system, if generated simultaneously with an EGPWS message, will be heard simultaneously. However the two aural messages are easily distinguishable from each other.

EGPWS FAILURE CONDITIONS

BE ALERT TERRAIN Audio alert and amber TERRAIN N/A message INOP on lower left PFD HSI display and MFD MAP page status window. Terrain display not available.
GPWS INOP Amber message on PFD attitude indicator.
Ground Proximity Warning System inoperative.
TAWS FAIL Amber message on PFD attitude display and MFD MAP page status window. Loss of valid TAWS information.
TERR Amber message on PFD HSI half range ring MFD MAP page half range ring. Loss of terrain video data.
TERR INOP Amber message on PFD attitude display and MFD MAP page status window. Terrain awareness function is inoperative.
TERR N/A Amber message on lower left PFD HSI display and MFD MAP page status window and an audio alert BE ALERT TERRAIN INOP. Terrain display not available due to loss of valid satellite information.

Note

For failure conditions of the TAWS, Terrain and Obstacle Avoidance Indications and alerts are not available or not reliable.

EURONAV DIGITAL MAP SYSTEM - EMERGENCY AND MALFUNCTION PROCEDURES
According to Supplement 28
DOUBLE DC GENERATOR FAILURE

The following assumes the Double DC generator Failure procedures, presented in Section 3 of the Basic Manual, have been followed and a double DC generator failure is **confirmed.**

CAUTION
Ensure that the EURONAV Digital Map system is switched OFF.

(03.01.07)- Guidance for Diversion in case of Serious Technical Failure

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC1 ORO.GEN.110(f)(h)

EMERGENCY LANDING GUIDANCE

Throughout this Section, three terms are used to indicate the degree of urgency with which a landing must be effected. In cases where extremely hazardous landing conditions exist such as dense bush, heavy seas or mountainous terrain, the final decision as to the urgency of landing must be made by the pilot.

1. **Land immediately: —** Land at once, even if for example this means ditching or landing in trees. The consequences of continued flight are likely to be more hazardous than those of landing at a site normally considered unsuitable.
2. **Land as soon as possible: —** Do not continue flight for longer than is necessary to achieve a safe and unhurried landing at the nearest site.
3. **Land as soon as practicable: —** Land at the nearest aviation location or, if there is none reasonably close, at a safe landing site selected for subsequent convenience.

(03.01.08)- Ground Proximity Warning, including for helicopters Audio Voice Alerting Device (AVAD) Warning

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC1 ORO.GEN.110(f)(h) / CAT.OP.MPA.290

Rotorcraft Flight Manual Supplement 23 Enhanced Ground Proximity Warning System EGPWS

GENERAL INFORMATION

System provides the pilot with the following:
— Terrain and obstacle awareness display
— Voice alerts/warnings/call outs
— Visual Caution and Warning messages.

This information is provided through two independent functions:

1. Ground Proximity Warning System (GPWS)

This function is based primarily on the vertical separation of the helicopter with terrain. It uses altitude and altitude rates/terrain closure rates to alert to insufficient terrain clearance. There are six operating modes:

- Mode 1: Excessive Descent Rate
- Mode 2. Excessive Terrain Closure Rate
- Mode 3: Descent after Take-Off
- Mode 4: Unsafe terrain clearance
- Mode 5: Descent Below Glideslope
- Mode 6: Advisory alerts for Excessive Bank Angle, Tail Too Low, and Altitude call outs in Autorotation.

2. Terrain Awareness Display and "Look Ahead" alerting and warning

The function uses information from the GPS and other sources on the aircraft to calculate horizontal position and vertical altitude. This data provides a three dimensional position for the aircraft. This position is then compared to the terrain data base and if a conflict with terrain or a known obstacle is imminent the system provides an alert.

EGPWS VOICE MESSAGES AND ASSOCIATED CAPTIONS ON PFD ATTITUDE DISPLAY

Note

Aural messages from the helicopter caution and warning system, if generated simultaneously with an EGPWS message, will be heard simultaneously. However the two aural messages are easily distinguishable from each other.

Priority Aural Message Red Caption Amber Caption

1 PULL UP PULL UP —
2 TERRAIN TERRAIN — GND PROX
3 WARNING TERRAIN PULL UP —
4 WARNING OBSTACLE PULL UP —
5 TERRAIN — GND PROX

6 CAUTION TERRAIN — GND PROX
7 CAUTION OBSTACLE — GND PROX
8 TOO LOW TERRAIN — GND PROX
9 TOO LOW GEAR — GND PROX
10 SINKRATE — GND PROX
11 DON'T SINK — GND PROX
12 GLIDESLOPE — GND PROX
13 BANK ANGLE — —
14 TAIL TOO LOW — —
15 BE ALERT TERRAIN INOP — —

(03.01.09)- ACAS/TCAS Warning/Audio Voice Alerting Device (AVAD) warning for helicopters

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC1 ORO.GEN.110(f)(h)

Rotorcraft Flight Manual Supplement 25 Traffic Advisory System

TCAS I OPERATION

TCAS I monitors the airspace surrounding the helicopter by interrogating the transponder of the Intruding aircraft. The interrogation reply enables TCAS I to compute the following information about the Intruder:

1. Range between the helicopter and Intruder.
2. Relative bearing to Intruder.
3. Altitude and vertical speed of the Intruder, if Intruder is reporting altitude.
4. Closing rate between the Intruder and the helicopter.

Using this data, TCAS I predicts the time to, and the separation at, the Intruder's Closest Point of Approach (CPA). Should TCAS I predict that certain safe boundaries may be violated, it will issue a Traffic Advisory (TA) to alert the crew that closing traffic is nearby.

TCAS I separates the surrounding airspace into two altitude layers. A different sensitivity threshold level for issuing TAs (traffic advisories) is applied to each altitude layer. Lower altitudes have less sensitive TA threshold levels to prevent unnecessary advisories in the higher traffic densities anticipated at lower flight levels, i.e., terminal areas.

TCAS I has two sensitivity levels (SL), SL A and SL B:

— Sensitivity Level A is set when the helicopter is in-flight below 2,000 feet AGL, or with RAD ALT in fail and landing gear extended. The following conditions cause TCAS I to generate a TA in sensitivity level A:

- Maintaining the current closing rate, separation of less than 600 feet in altitude between the helicopter and Intruder will occur in 20 seconds
- Separation between the helicopter and Intruder is less than 1200 feet in altitude and less than 0.20 nautical mile range
- NAR (Non-Altitude Reporting) Intruder is within 15 seconds or 0.20 nautical mile range.

— Sensitivity Level B occurs under all other flight conditions and is set when the helicopter is in flight above 2,000 feet AGL, or with RAD ALT in fail and Landing Gear is retracted. The following conditions cause TCAS I to generate a TA in sensitivity level B:

- Maintaining the current closing rate, separation of less than 800 feet in altitude between the helicopter and Intruder will occur in 30 seconds
- Separation between the helicopter and Intruder is less than 800 feet in altitude and less than 0.55 nautical miles in range
- NAR (Non-Altitude Reporting) Intruder is within 20 seconds or 0.55 nautical mile range.

If an aircraft is indicated on the **TCAS (KTA 970 or TPA 100B)** during flight, the following procedure shall be followed:

03.01.09.01 **Under Visual Flight Rules**

Upon display on the MFD, the displayed aircraft's position and altitude relative to own aircraft shall be assessed. The vicinity shall be scanned for the displayed aircraft. If following increasing proximity the warning "TRAFFIC" is triggered, full concentration outside the cockpit is required in order to identify the other aircraft and respond according to avoidance rules.

03.01.09.02 **Under Instrument Flight Rules**

Upon display on the MFD, the displayed aircraft's position and altitude relative to own aircraft shall be assessed. If the displayed aircraft nears own aircraft increased attention to the situation is required. ATC shall be advised as to the

increasing proximity of the aircraft.

03.01.09.02.01 **In VMC**

If the other aircraft continues to near own aircraft and the warning "TRAFFIC" is triggered, full attention outside the cockpit must be given to identify the other aircraft and to enact avoidance procedures as in accordance with the rules of the air.

ATC shall be informed of the avoidance manoeuvre.

03.01.09.02.02 **In IMC**

If following increasing proximity the warning "TRAFFIC" is triggered, evasive action is to be undertaken in an opposite direction and height to ensure separation.

- If the other aircraft approaches form the right, a 45° left turn is to be made together with an increase in height of 500 ft.
- If the other aircraft approaches from the left, a 45° climbing turn of 500 ft to the right is to be undertaken.

ATC shall be advised of the avoidance manoeuvre.

03.01.09.03 **Report Following an Air Proximity**

If there has been a dangerous proximity, an Occurrence Report shall be made together with a report to TR DGCA that an air proximity has occurred.

(03.01.10)- Windshear

Revizyon No: 7 Revizyon Tarihi: 21.06.2020

AMC1 ORO.GEN.110(f)(h)

If the crew experience wind shear it shall:

- During landing:
  - Apply maximum available power to arrest the sink rate.
  - Not allow the airspeed to go below 45 KIAS or go above VNE.
  - If normal value for landing cannot be maintained, the landing shall be aborted and a new approach and landing carried out or flight to an alternative aerodrome undertaken.
  - ATC shall be advised of the wind shear.
- During take-off:
- Maximum available power shall be applied in order to maintain the climb rate and achieve the greatest height above ground.
- The airspeed shall be kept above 45 KIAS.
- If the available power is insufficient to assure a safe take-off, a safety landing is to be carried out.
- ATC shall be advised of the wind shear.

(03.01.11)- Autorotative Landing / Ditching

Revizyon No: 7 Revizyon Tarihi: 21.06.2020

AMC1 ORO.GEN.110(f)(h)

AUTOROTATION ENTRY AND LANDING PROCEDURE

The procedure which follows outlines the steps required to execute a successful entry and autorotation landing (ditching), time permitting, consult the appropriate Emergency Procedure for the additional steps required to deal with a specific type failure.

1. Collective pitch - Smoothly and rapidly reduce to enter autorotation.
2. Cyclic - Adjust to obtain autorotation at between 80 KIAS (minimum rate of descent speed) and 100 KIAS (Best range speed).
3. Collective pitch - Adjust to obtain up to 110% NR.
4. Landing gear - Extend. (UP for ditching).
5. Landing site - Select and manoeuvre into wind.
6. Brief - Cabin crew and occupants.
7. Radar altimeter - Verify working.
8. Windscreen wipers - As required (FAST for ditching).
9. Distress procedure - Broadcast **Mayday** (time permitting).
10. Shutdown - If appropriate and time available carry out EMERGENCY/POST CRASH SHUTDOWN procedure (steps 1 to 5 only).
11. Cyclic - At approximately 200 feet AGL, initiate a cyclic flare to a maximum 30° nose-up angle.
12. Collective pitch - Adjust, as required, to maintain NR at 110% maximum during the flare.
13. Cyclic I Collective pitch - At approximately 35 feet AGL, reduce pitch attitude to 10° nose-up and apply collective pitch, as required, to achieve touchdown at approximately 300 feet per minute or less.
14. Touchdown speed - As required by surface characteristics. Maximum touchdown speed 60 kts on paved surface and 40 kts on grass surface. (For ditching approach into oncoming waves, if possible, not exceeding 30 kts)
15. Collective pitch - Following touchdown, lower promptly to conserve the remaining rotor speed.
16. Wheel brakes - Apply as required (land only).
17. Shutdown - If not carried out previously, execute the EMERGENCY/POST CRASH SHUTDOWN procedure.
18. Evacuate - Evacuate the aircraft as soon as possible.

DITCHING
According to Supplement 9 Ditching Configuration

Consideration should be given to the environmental factors, such as wind direction and speed, sea state and engine power available. Approach and landing should be into wind. When landing into waves, land head-on to oncoming waves avoiding, if possible, ditching into the face of the wave.

WARNING

As considerable error can result from estimation of height over water, the radar altimeter should be used for height cues during descent.

WARNING

Do not deploy flotation bags in flight. Bags will automatically deploy on water touchdown.

CAUTION

At high touchdown speeds, the rotorcraft may roll and turn to the left after touchdown due to gyroscopic effects. This will require pilot corrective action.

Note

After ditching the rotor brake does not function, even if the undercarriage is extended.

LANDING / DITCHING PROCEDURE

1. Collective/ - Rotate nose down in 1 second to an attitude of no Cyclic control more than -20° while decreasing collective to maintain NR at 100%.

Note

The nose down rotation should be commensurate with hover height. An engine failure at low height will not allow a

large pitch attitude change prior to water/ground impact. Engine failures at higher hover heights will permit greater pitch attitude change to gain aispeed energy that is subsequently used during the flare.

2. Cyclic - At 50 ft AGL rotate nose up as necessary (maximum 20°) to decelerate.
3. Approach/ Touchdown - Continue deceleration to attain landing attitude (level or 5° nose up) prior to touchdown or ditching at the slowest forward speed possible. Use collective to cushion touchdown.
4. Landing/Ditching - After touchdown, centralize cyclic and simultaneously reduce collective to MPOG. Apply brakes as required for ground landing or initiate the Ditching Procedure described in Supplement 9.

CAUTION

If the undercarriage is not extended the Rotor Brake will I not function. In this case use the collective to slow the rotor, being aware the aircraft may yaw left.

DITCHING PROCEDURE
(WHEN FLOTATON AND LIFERAFTS INSTALLED)

- Approach and landing should be into wind.
- When landing into waves, land head-on to oncoming waves avoiding, if possible, ditching into the fave of the wave.
- Rotor Brake will not function (with landing gear retracted).

WARNING

As considerable error can result from estimation of height over water, the radar altimeter should be used for height cues during descent.

WARNING

Do not deploy flotation bags in flight. Bags will automatically deploy on water touchdown.

DITCHING PROCEDURES

1. Pre-ditching checks - Warn crew and passengers to prepare for ditching.
2. OFF/ARMED switch (FLOATS EMER panel) - Confirm ARMED. FLOAT ARM caution displayed on CAS
3. Landing Gear - Confirm UP.

CAUTION

If the landing gear cannot be retracted, ditching with minimum forward speed is recommended.

4. Lights - At night, switch ON emergency lights and landing light.
5. Landing direction - If possible orientate the aircraft for an approach into the prevailing wind.
6. Brief - Cabin crew and occupants.
7. Radar altimeter - Verify working.
8. Windscreen wipers - Select FAST.
9. Distress procedure - Broadcast Mayday.

(03.01.12)- Birdstrike

Revizyon No: 9 Revizyon Tarihi: 15.08.2022

AMC1 ORO.GEN.110(f)(h)

If a birdstrike has occurred or believed to have occurred, the aircraft shall land

a) If stark vibrations are present

- For flights over land, a safety landing shall be carried out
- For offshore flights, the next possible landing opportunity shall be used (offshore installation) or a landing onshore made, depending on which is nearest.

b) If engine malfunctions are present

- Malfunction of one engine – land as soon practicable
- Malfunction of both engines – land as soon as possible
- Severe malfunction of both engines – land immediately

The aircraft must undergo maintenance inspection before further flight

c) If there no malfunction is manifest – land as soon as practicable.

After landing a visual inspection shall be carried out.

- If there is evidence of a birdstrike, a technical inspection must be carried out.
- If there is no evidence of a birdstrike, the flight may be continued.

(03.02)- EFB Abnormal Procedures

Revizyon No: 10 Revizyon Tarihi: 11.01.2023

SPA.EFB.100

2.1 General

When an EFB operates abnormally, it is always preferable to accomplish a reset procedure to see if the problem will cease prior to applying any of the procedures that follow. This must not be done if the flight crew deems that further operation of the EFB could affect the safety of the flight.

2.2 Single EFB Failure

- On failed EFB, press and hold both power (top) and home buttons simultaneously... ACCOMPLISHED
- Release when white Apple logo is shown..... ACCOMPLISHED
- Wait for power-up and check if EFB operates normally..... CHECK
- Use Back-Up #3 EFB if #1 does not reset..... CHECK

** If one EFB is malfunctioning, the flight will continue to the destination using #2 EFB and back-up EFB.*

2.3 Dual EFB Failure

- On failed EFB, press and hold both power (top) and home buttons simultaneously... ACCOMPLISHED
- Release when white Apple logo is shown..... ACCOMPLISHED
- Wait for power-up and check if EFB operates normally..... CHECK
- Contact ATC and request radar vector and assistance if #1 and #2 does not reset... CHECK

** If two EFB is malfunctioning, the flight will continue to the destination using helicopter system.*

2.4 IPads or Power bank Overheat or Smoke

In case of any overheat or smoke condition persist for iPads or Power banks:

- Disconnect all equipment from charging.
- Turn off iPads.
- Put equipment into the fireproof bag.
- Isolate faulty equipment with the fireproof bag.

** An Occurrence Report must be submitted after landing.*

(03.03)- EFB Emergency Procedures

Revizyon No: 10 Revizyon Tarihi: 11.01.2023

SPA.EFB.100

IN-FLIGHT EMERGENCY PROCEDURES - EFB

In the event of an in-flight problem with an EFB (e.g., suspected interference with aircraft systems, fire, or a safety issue):

- All crew members shall be informed
- Suspect equipment should be switched off
- Thermal runaway of batteries, in particular lithium batteries and the potential resulting fire, should be handled properly:
    - Company aircraft carry one fireproof bag for portable electronic devices (PEDs) with lithium battery fires.
    - The only way to handle such fires is to use the cabin extinguisher to put out the flames, use water (if available) to cool the device, and remove it from the aircraft as soon as possible.

TABLE OF CONTENTS

04-PERFORMANCE

CAT.POL.H.100

(04.00)- Performance - GENERAL

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

CAT.POL.H.105 / CAT.POL.H.100

04.00.01 Applicability

(a) KAAN AIR Helicopters will be operated in accordance with the applicable performance class requirements.

(b) Helicopters shall be operated in **Performance Class 1:**
When operated to/from aerodromes or operating sites located in a congested hostile environment, except when operated to/from a public interest site (PIS) in accordance with CAT.POL.H.225;

(c) Unless otherwise prescribed by (b), helicopters that have an MOPSC of 19 or less but more than nine shall be operated in **Performance Class 1 or 2.**

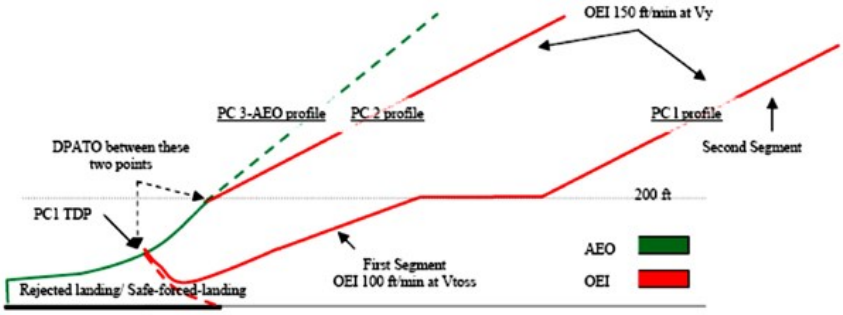
(d) Unless otherwise prescribed by (b), helicopters that have an MOPSC of nine or less shall be operated in **Performance Class 1, 2 or 3.**

04.00.02 General

When showing compliance with the requirements of this section, account shall be taken of the following parameters:

(1) mass of the helicopter;
(2) the helicopter configuration;
(3) the environmental conditions, in particular:
(i) pressure altitude and temperature;
(ii) wind:
(A) except as provided in (C), for take-off, take-off flight path and landing requirements, accountability for wind shall be no more than 50 % of any reported steady headwind component of 5 kt or more;
(B) where take-off and landing with a tailwind component is permitted in the RFM, and in all cases for the take-off flight path, not less than 150 % of any reported tailwind component shall be taken into account; and
(C) where precise wind measuring equipment enables accurate measurement of wind velocity over the point of take-off and landing, wind components in excess of 50 % may be established by KAAN AIR, provided that the operator demonstrates to the TR DGCA that the proximity to the FATO and accuracy enhancements of the wind measuring equipment provide an equivalent level of safety;
(4) the operating techniques; and
(5) the operation of any systems that have an adverse effect on performance.

04.00.03 All Performance Classes (a comparison)



(04.01)- Performance Class 1 Helicopter

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

CAT.POL.H.200

04.01.01 Performance data

The Commander calculates the performance data for the performance class according to the RFM for the helicopter concerned. The basis of the calculation are the pressure altitude and temperature of the take-off location (and/or landing location where this value would be limiting). The performance data are to be found in the following parts:

- AW139 - RFM - Section 4
- AW139 - RFM - Supplement 12 CAT A Operations

04.01.02 Performance for special take-off and landing procedures according to Category A

The AW139 is certified in accordance with Category A and flown accordingly. The Commander is responsible for ensuring that the correct performance data are applied in order that Category A procedure profiles can be flown in the correct Performance Class, particularly with reference to the take-off and landing phases of flight in the event of a critical engine failure.

The flight performance data for the various take-off and landing profiles are to be found in Appendix (CAT A Procedures)

04.01.03 Take-off
CAT.POL.H.205

(a) The take-off mass shall not exceed the maximum take-off mass specified in the RFM for the procedure to be used.
(b) The take-off mass shall be such that:
(1) it is possible to reject the take-off and land on the FATO in case of the critical engine failure being recognised at or before the take-off decision point (TDP);
(2) the rejected take-off distance required (RTODRH) does not exceed the rejected take-off distance available (RTODAH); and
(3) the TODRH does not exceed the take-off distance available (TODAH).
(4) Notwithstanding (b)(3), the TODRH may exceed the TODAH if the helicopter, with the critical engine failure recognised at TDP can, when continuing the take-off, clear all obstacles to the end of the TODRH by a vertical margin of not less than 10,7 m (35 ft).
(c) When showing compliance with (a) and (b), account shall be taken of the appropriate parameters of CAT.POL.H.105(c) at the aerodrome or operating site of departure.
(d) That part of the take-off up to and including TDP shall be conducted in sight of the surface such that a rejected take-off can be carried out.
(e) For take-off using a backup or lateral transition procedure, with the critical engine failure recognition at or before the TDP, all obstacles in the back-up or lateral transition area shall be cleared by an adequate margin.

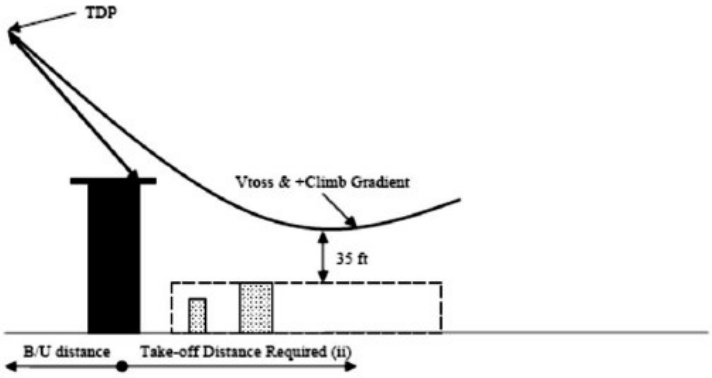
04.01.03.01 Definition of TODRH
GM1 CAT.POL.H.205(b)(4) (b)

'**Take-off distance required (TODRH)**' in the case of helicopters means the horizontal distance required from the start of the take-off to the point at which take-off safety speed (VTOSS), a selected height and a positive climb gradient are achieved, following failure of the critical engine being recognised at the TDP, the remaining engines operating within approved operating limits.

04.01.04 Elevated helipad procedures
GM1 CAT.POL.H.205(b)(4) (d)(2)

The elevated helipad procedure (see figure below) is a special case of the ground level helipad procedure discussed another section.

Elevate Helipad take–off



The main difference is that drop down below the level of the take-off surface is permitted. In the drop down phase, the Category A procedure ensures deck-edge clearance but, once clear of the deck-edge, the 35 ft clearance from obstacles relies upon the calculation of drop down. Subparagraph (b) of AMC1 CAT.POL.H.205(b)(4) is applied.

Although 35 ft is used throughout the requirements, it may be inadequate at particular elevated FATOs that are subject to adverse airflow effects, turbulence, etc.

04.01.05 En-route — critical engine inoperative
CAT.POL.H.215
(a) The mass of the helicopter and flight path at all points along the route, with the critical engine inoperative and the meteorological conditions expected for the flight, shall permit compliance with (1), (2) or (3):
(1) When it is intended that the flight will be conducted at any time out of sight of the surface, the mass of the helicopter permits a rate of climb of at least 50 ft/minute with the critical engine inoperative at an altitude of at least 300 m (1 000 ft), or 600 m (2 000 ft) in areas of mountainous terrain, above all terrain and obstacles along the route within 9,3 km (5 NM) on either side of the intended track.
(2) When it is intended that the flight will be conducted without the surface in sight, the flight path permits the helicopter to continue flight from the cruising altitude to a height of 300 m (1000 ft) above a landing site where a landing can be made in accordance with CAT.POL.H.220. The flight path clears vertically, by at least 300 m (1000 ft) or 600 m (2000 ft) in areas of mountainous terrain, all terrain and obstacles along the route within 9,3 km (5 NM) on either side of the intended track. Drift-down techniques may be used.
(3) When it is intended that the flight will be conducted in VMC with the surface in sight, the flight path permits the helicopter to continue flight from the cruising altitude to a height of 300 m (1000 ft) above a landing site where a landing can be made in accordance with CAT.POL.H.220, without flying at any time below the appropriate minimum flight altitude. Obstacles within 900 m on either side of the route need to be considered.

(b) When showing compliance with (a)(2) or (a)(3):
(1) the critical engine is assumed to fail at the most critical point along the route;
(2) account is taken of the effects of winds on the flight path;
(3) fuel jettisoning is planned to take place only to an extent consistent with reaching the aerodrome or operating site with the required fuel reserves and using a safe procedure; and
(4) fuel jettisoning is not planned below 1000 ft above terrain.

(c) The width margins of (a)(1) and (a)(2) shall be increased to 18,5 km (10 NM) if the navigational accuracy cannot be met for 95 % of the total flight time.

04.01.06 Landing
CAT.POL.H.220
(a) The landing mass of the helicopter at the estimated time of landing shall not exceed the maximum mass specified in the RFM for the procedure to be used.
(b) In the event of the critical engine failure being recognised at any point at or before the landing decision point (LDP), it is possible either to land and stop within the FATO, or to perform a balked landing and clear all obstacles in the flight path by a vertical margin of 10,7 m (35 ft). Only obstacles as specified in CAT.POL.H.110 have to be considered.
(c) In the event of the critical engine failure being recognised at any point at or after the LDP, it is possible to:
(1) clear all obstacles in the approach path; and
(2) land and stop within the FATO.
(d) When showing compliance with (a) to (c), account shall be taken of the appropriate parameters of CAT.POL.H.105(c) for the estimated time of landing at the destination aerodrome or operating site, or any alternate if required.
(e) That part of the landing from the LDP to touchdown shall be conducted in sight of the surface.

(04.02)- Performance Class 2 Helicopter

04.02.01 General
CAT.POL.H.300

Helicopters operated in **Performance Class 2** shall be certified in category A or equivalent as determined by TR DGCA.

04.02.02 OPERATIONS IN PERFORMANCE CLASS 2
GM to Section 2, Chapter 3 performance class 2

(a) **Introduction**

This section describes performance class 2 as established in Part-CAT. It has been produced for the purpose of:
(1) explaining the underlying philosophy of operations in performance class 2;
(2) showing simple means of compliance; and
(3) explaining how to determine — with examples and diagrams:
(i) the take-off and landing masses;
(ii) the length of the safe forced landing area;
(iii) distances to establish obstacle clearance; and
(iv) entry point(s) into performance class 1.

It explains the derivation of performance class 2 from ICAO Annex 6 Part III and describes an alleviation that may be approved in accordance with CAT.POL.H.305 following a risk assessment. It examines the basic requirements, discusses the limits of operation, and considers the benefits of the use of performance class 2.

It contains examples of performance class 2 in specific circumstances, and explains how these examples may be generalised to provide operators with methods of calculating landing distances and obstacle clearance.

(b) **What defines performance class 2**

Performance class 2 can be considered as;

- **performance class 3 take-off or landing, and**
- **performance class 1 climb, cruise and descent.**

It comprises;

- **an all-engines-operating (AEO) obstacle clearance regime for the take-off or landing phases, and**
- **a OEI obstacle clearance regime for the climb, cruise, descent, approach and missed approach phases.**

For the purpose of performance calculations in Part-CAT, the CS/JAR 29.67 Category A climb performance criteria is used:

— 150 ft/min at 1000 ft (at Vy); and depending on the choice of DPATO:
— 100 ft/min up to 200 ft (at VTOSS) at the appropriate power settings.

(c) **The derivation of performance class 2** PC2 is primarily based on the text of ICAO Annex 6 Part III Section II and its attachments which provide for the following:
(1) obstacle clearance before DPATO: the helicopter shall be able, with all engines operating, to clear all obstacles by an adequate margin until it is in a position to comply with (2);
(2) obstacle clearance after DPATO: the helicopter shall be able, in the event of the critical engine becoming inoperative at any time after reaching DPATO, to continue the take-off clearing all obstacles along the flight path by an adequate margin until it is able to comply with en-route clearances; and
(3) engine failure before DPATO: before the DPATO, failure of the critical engine may cause the helicopter to force land; therefore, a safe forced landing should be possible (this is analogous to the requirement for a reject in performance class 1, but where some damage to the helicopter can be tolerated.)

(d) **Benefits of performance class 2**

Operations in performance class 2 permit advantage to be taken of an AEO procedure for a short period during take-off and landing — whilst retaining engine failure accountability in the climb, descent and cruise. The benefits include the ability to:

(1) use (the reduced) distances scheduled for the AEO — thus permitting operations to take place at smaller aerodromes and allowing airspace requirements to be reduced;
(2) operate when the safe forced landing distance available is located outside the boundary of the aerodrome;
(3) operate when the take-off distance required is located outside the boundary of the aerodrome; and
(4) use existing Category A profiles and distances when the surface conditions are not adequate for a reject, but are suitable for a safe forced landing (for example, when the ground is waterlogged).

Additionally, following a risk assessment when the **use of exposure** is approved by the TR DGCA the ability to:

(i) operate when a safe forced landing is not assured in the take-off phase; and
(ii) penetrate the HV curve for short periods during take-off or landing.

04.02.03 Take-off
CAT.POL.H.310

(a) The take-off mass shall not exceed the maximum mass specified for a rate of climb of 150 ft/min at 300 m (1000 ft) above the level of the aerodrome or operating site with the critical engine inoperative and the remaining engine(s) operating at an appropriate power rating.
(b) For operations other than those specified in CAT.POL.H.305, the take-off shall be conducted such that a safe forced landing can be executed until the point where safe continuation of the flight is possible.
(c) For operations in accordance with CAT.POL.H.305, in addition to the requirements of (a):
(1) the take-off mass shall not exceed the maximum mass specified in the RFM for an all engines operative out of ground effect (AEO OGE) hover in still air with all engines operating at an appropriate power rating; or
(2) for operations from a helideck:
Any helicopter operated from a helideck located in a hostile environment, the take-off mass shall take into account: the procedure; deck-edge miss and drop down appropriate to the height of the helideck with the critical engine(s) inoperative and the remaining engines operating at an appropriate power rating.
(d) When showing compliance with (a) to (c), account shall be taken of the appropriate parameters of CAT.POL.H.105(c) at the point of departure.
(e) That part of the take-off before the requirement of CAT.POL.H.315 is met shall be conducted in sight of the surface.

05.02.04 En-route — critical engine inoperative
CAT.POL.H.320

The requirement of CAT.POL.H.215 shall be complied with and as defined OM B 04.01.05.

05.02.05 Landing
CAT.POL.H.325

(a) The landing mass at the estimated time of landing shall not exceed the maximum mass specified for a rate of climb of 150 ft/min at 300 m (1000 ft) above the level of the aerodrome or operating site with the critical engine inoperative and the remaining engine(s) operating at an appropriate power rating.
(b) If the critical engine fails at any point in the approach path:
(1) a balked landing can be carried out meeting the requirement of CAT.POL.H.315; or
(2) for operations other than those specified in CAT.POL.H.305, the helicopter can perform a safe forced landing.
(c) For operations in accordance with CAT.POL.H.305, in addition to the requirements of (a):
(1) the landing mass shall not exceed the maximum mass specified in the RFM for an AEO OGE hover in still air with all engines operating at an appropriate power rating; or
(2) for operations to a helideck:
Any helicopter operated to a helideck located in a hostile environment, the landing mass shall take into account the procedure and drop down appropriate to the height of the helideck with the critical engine inoperative and the remaining engine(s) operating at an appropriate power rating.
(d) When showing compliance with (a) to (c), account shall be taken of the appropriate parameters of CAT.POL.H.105(c) at the destination aerodrome or any alternate, if required.
(e) That part of the landing after which the requirement of (b)(1) cannot be met shall be conducted in sight of the surface.

(04.03)- Performance Class 3 Helicopter

CAT.POL.H.400

04.03.01 General
CAT.POL.H.400

(a) Helicopters operated in **Performance Class 3** shall be certified in category A or equivalent as determined by TR DGCA, or category B.

(b) Operations shall only be conducted in a **non-hostile environment**, except:
(1) when operating in accordance with CAT.POL.H.420; or
(2) for the take-off and landing phase, when operating in accordance with (c).

(c) Provided KAAN AIR is approved in accordance with CAT.POL.H.305, operations may be conducted to/from an aerodrome or operating site located outside a congested hostile environment **without an assured safe forced landing capability**:
(1) during take-off, before reaching Vy (speed for best rate of climb) or 200 ft above the takeoff surface; or
(2) during landing, below 200 ft above the landing surface.

(d) Operations shall not be conducted:
(1) out of sight of the surface;
(2) at night;
(3) when the ceiling is less than 600 ft; or
(4) when the visibility is less than 800 m.

04.03.02 General - THE TAKE-OFF AND LANDING PHASES (PERFORMANCE CLASS 3)
GM1 CAT.POL.H.400(c)

(a) To understand the use of ground level exposure in performance class 3, it is important first to be aware of the logic behind the use of ‘take-off and landing phases’.

Once this is clear, it is easier to appreciate the aspects and limits of the **use of ground level exposure**. This GM shows the derivation of the term from the ICAO definition of the ‘en-route phase’ and then gives practical examples of the use, and limitations on the use, of ground level exposure in CAT.POL.400(c).

(b) The take-off phase in performance class 1 and performance class 2 may be considered to be bounded by ‘the specified point in the take-off’ from which the take-off flight path begins.
(1) In performance class 1, this specified point is defined as ‘the end of the take-off distance required’.
(2) In performance class 2, this specified point is defined as DPATO or, as an alternative, no later than 200 ft above the take-off surface.
(3) There is no simple equivalent point for bounding of the landing in performance classes 1 & 2.
(c) Take-off flight path is not used in performance class 3 and, consequently, the term ‘take-off and landing phases’ is used to bound the limit of exposure. For the purpose of performance class 3, the take-off and landing phases are as set out in CAT.POL.H.400(c) and are considered to be bounded by:
(1) during take-off before reaching Vy (speed for best rate of climb) or 200 ft above the take-off surface; and
(2) during landing, below 200 ft above the landing surface.

(ICAO Annex 6 Part III, defines **en-route phase** as being "That part of the flight from the end of the take-off and initial climb phase to the commencement of the approach and landing phase.’

The use of take-off and landing phase in this text is used to distinguish the take-off from the initial climb, and the landing from the approach: they are considered to be complimentary and not contradictory.)

(d) **Ground level exposure** — and **exposure for elevated FATOs or helidecks in a non-hostile environment** — is permitted for operations under an approval in accordance with CAT.POL.H.305. Exposure in this case is limited to the ‘take-off and landing phases’. The practical effect of bounding of exposure can be illustrated with the following examples:
(1) A clearing: KAAN AIR may consider a take-off/landing in a clearing when there is sufficient power, with all engines operating, to clear all obstacles in the take-off path by an adequate margin (this, in ICAO, is meant to indicate 35 ft). Thus, the clearing may be bounded by bushes, fences, wires and, in the extreme, by power lines, high trees, etc. Once the obstacle has been cleared, by using a steep or a vertical climb (which itself may infringe

the height velocity (HV) diagram), **the helicopter reaches Vy or 200 ft**, and from that point **a safe forced landing must be possible**. The effect is that whilst operation to a clearing is possible, operation to a clearing in the middle of a forest is not (except when operated in accordance with CAT.POL.H.420).

(2) An aerodrome/operating site surrounded by rocks: the same applies when operating to a landing site that is surrounded by rocky ground. Once Vy or 200 ft has been reached, a safe forced landing must be possible.

(3) **An elevated FATO or helideck**: when operating to an elevated FATO or helideck in performance class 3, exposure is considered to be two-fold: **firstly**, to a deck-edge strike if the engine fails after the decision to transition has been taken; and **secondly**, to operations in the HV diagram due to the height of the FATO or helideck. Once the take-off surface has been cleared and the helicopter has reached the knee of the HV diagram, the helicopter should be capable of making a safe forced landing.

(e) Operation in accordance with CAT.POL.400(b) does not permit excursions into a hostile environment as such and is specifically concerned with the absence of space to abort the take-off or landing when the take-off and landing space are limited; or when operating in the HV diagram.

(f) Specifically, the use of this exception to the requirement for a safe forced landing (during take-off or landing) does not permit semi-continuous operations over a hostile environment such as a forest or hostile sea area.

04.03.03 Take-off
CAT.POL.H.405

(a) The take-off mass shall **be the lower of**:

(1) the MCTOM; or

(2) the maximum take-off mass specified for a hover in ground effect with all engines operating at take-off power, or if conditions are such that a hover in ground effect is not likely to be established, the take-off mass specified for a hover out of ground effect with all engines operating at take-off power.

(b) Except as provided in CAT.POL.H.400(b), in the event of an engine failure the helicopter shall be able to perform a safe forced landing.

04.03.04 En-route
CAT.POL.H.410

(a) The helicopter shall be able, with all engines operating within the maximum continuous power conditions, to continue along its intended route or to a planned diversion without flying at any point below the appropriate minimum flight altitude.

(b) Except as provided in CAT.POL.H.420, in the event of an engine failure the helicopter shall be able to perform a safe forced landing.

04.03.05 Landing
CAT.POL.H.415

(a) The landing mass of the helicopter at the estimated time of landing shall **be the lower of**:

(1) the maximum certified landing mass; or

(2) the maximum landing mass specified for a hover in ground effect, with all engines operating at take-off power, or if conditions are such that a hover in ground effect is not likely to be established, the landing mass for a hover out of ground effect with all engines operating at take-off power.

(b) Except as provided in CAT.POL.H.400(b), in the event of an engine failure, the helicopter shall be able to perform a safe forced landing.

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05-FLIGHT PLANNING

CAT.OP.MPA.175(a)

(05.01)- Operational Flight Plan

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC1 CAT.OP.MPA.175(a) / CAT.OP.MPA.175

The Commander is responsible for proper and complete flight planning. The Commander can delegate tasks involved in flight planning, but remains responsible for it.

Flight planning includes at least the following tasks:

- The creation of an **operational flight plan**
- Mass and balance calculation
- A passenger &/or cargo manifest
- The determination of an alternate landing site.
- Fuel requirement for the planned flight
- Evaluation of all information relevant to the flight:
  - NOTAMs
  - Weather
  - Approvals, etc.
- Coordination and task assignment for other crew members
- Creation of a flight plan

- The operational flight plan and its use has been described in the OM A 08.01.10
- Items that operational flight plan used and the entries made during flight are listed OM A 08.01.10
- All entries on the operational flight plan will be made concurrently and be permanent in nature.

(05.02)- Data and Instructions necessary for Pre-Flight

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC3 ORO.MLR.100 / CAT.OP.MPA.175(a) / CAT.GEN.MPA.185 / CAT.OP.MPA.175

05.02.01 Flight preparation

(a) An **operational flight plan** will be completed for each intended flight based on considerations of aircraft performance, other operating limitations and relevant expected conditions on the route to be followed and at the aerodromes/operating sites concerned.

(b) The flight will not be commenced **unless the commander is satisfied** that:

(1) all items stipulated in 2.a.3 of Annex IV to Regulation (EC) No 216/2008 concerning the airworthiness and registration of the aircraft, instrument and equipment, mass and centre of gravity (CG) location, baggage and cargo and aircraft operating limitations can be complied with;
(2) the aircraft is not operated contrary to the provisions of the configuration deviation list (CDL);
(3) the parts of the operations manual that are required for the conduct of the flight are available;
(4) the documents, additional information and forms required to be available by CAT.GEN.MPA.180 are on board;
(5) current maps, charts and associated documentation or equivalent data are available to cover the intended operation of the aircraft including any diversion that may reasonably be expected;
(6) space-based facilities, ground facilities and services that are required for the planned flight are available and adequate;
(7) the provisions specified in the operations manual in respect of fuel, oil, oxygen, minimum safe altitudes, aerodrome operating minima and availability of alternate aerodromes, where required, can be complied with for the planned flight;
(8) any navigational database required for performance-based navigation is suitable and current; and
(9) any additional operational limitation can be complied with.

(c) Notwithstanding (a), an operational flight plan is not required for operations under VFR of:

Helicopters with an MCTOM of 3 175 kg or less, by day and over routes navigated by reference to visual landmarks

in a **local area** as specified in the OM A.

05.02.02 Information to be retained on the ground

(a) The KAAN AIR will ensure that at least **for the duration of each flight** or series of flights:
(1) information relevant to the flight and appropriate for the type of operation is preserved on the ground;
(2) the information is retained until it has been duplicated at the place at which it will be stored; or, if this is impracticable
(3) the same information is carried in a fireproof container in the aircraft.

(b) The information referred to in (a) includes:
(1) **a copy of the operational flight plan**, where appropriate;
(2) **copies** of the relevant part(s) of the aircraft **technical log**;
(3) route-specific **NOTAM** documentation if specifically edited by the operator;
(4) **mass and balance** documentation if required; and
(5) special **loads** notification.

(05.03)- Air Traffic Services (ATS) Flight Plan

Revizyon No: 4 Revizyon Tarihi: 23.08.2018
CAT.OP.MPA.177 / AMC1 CAT.OP.MPA.177

05.03.01 Submission of the ATS flight plan

(a) If an ATS flight plan is not submitted because **it is not required by the rules** of the air, adequate information shall be deposited in order to permit alerting services to be activated if required.

(b) When operating from a site where **it is impossible to submit an ATS flight plan**, the ATS flight plan shall be transmitted as soon as possible **after take-off** by the commander or KAAN AIR.

05.03.02 Flights Without ATS Flight Plan

(a) When unable to submit or to close the ATS flight plan **due to lack of ATS facilities** or any other means of communications to ATS, **Flight Operations Planning and Coordination Dispatcher** is responsable for alerting search and recue services with the instructions below;

(b) To ensure that each flight is located at all times, these instructions should:

(1) provide the nominated person with at least the information required to be included in a VFR flight plan, and the **location**, **date** and **estimated time** for re-establishing communications;

(2) if an aircraft is overdue or missing, provide for notification to the appropriate ATS or search and rescue facility; and

(3) provide that the information will be retained at a designated place until the completion of the flight.

(05.04)- Data and Instructions necessary for Pre-Flight and In-flight Planning including factors such as Speed schedules and Power Settings

Revizyon No: 4 Revizyon Tarihi: 23.08.2018
AMC3 ORO.MLR.100
Operator Procedure

05.04.01 Fuel Planning

The fuel planning and in-flight monitoring is conducted according to the OM A 08.01.07 (Determination of fuel, oil and water/methanol to be carried).

05.04.02 Reference Data
- Maximum usable fuel 1270 kg / 1588 ltr (1286 kg maximum – 16 kg / 20 ltr unusable fuel)

- Taxi Fuel is calculated at 16 kg, or 5 kg/min
- Consumption in the cruise at 140 KIAS is calculated at 6,66 kg/min (400 kg/h)

  - This includes the additional fuel for the climb
  - This takes account of possible altitude changes during the flight
  - This takes into account the reduced fuel consumption during descent
  - This includes the approach to land at the destination (VFR)

- Where required, fuel for an approach (IFR) is calculated at 6,66 kg/min (400 kg/h)

  - for approaches to airports or ARAs, an additional 5 minutes
  - for additional landing sites, according to the planned approach

- Where required, fuel for the missed approach procedure is calculated at 6,66 kg/min (400 kg/h)

  - for ARA approaches, an additional 4 minutes
  - for missed approaches at airports 5 minutes
  - for additional landing sites, according to the published missed approach procedure

- Additional fuel for daytime flights in VMC and with visual reference to the terrain.

  - 320 kg/h (20min) - 106 kg

- Additional fuel for night flights in VMC, or without visual reference to the terrain

  - 360 kg/h (30min) - 180 kg

- Fuel consumption in a holding procedure 5,0 kg/min (300 kg/h)

05.04.03 Airspeeds Used for Flight Planning

En route / cruise speed 140 KIAS
Approach speed in visual conditions 90 KIAS
Airspeed during an instrument approach
Precision approach (recommended) 120 KIAS
Non-precision approach 120 KIAS
Airspeed during a holding procedure 90 KIAS
Climb airspeed after take-off 80 KIAS
Climb airspeed during a change of altitude or flight level up to 140 KIAS

(05.05)- Engine(s)-Out Operations

Revizyon No: 4 Revizyon Tarihi: 23.08.2018
AMC3 ORO.MLR.100

Refer to OM B 03.01.05 Engine Failure

(05.06)- List of Documents, Forms and Additional Information to be Carried

Revizyon No: 4 Revizyon Tarihi: 23.08.2018
CAT.GEN.MPA.180(a)(21)

Refer to OM A 08.01.12

(05.07)- Selection of Aerodromes and Operating Sites

Revizyon No: 4 Revizyon Tarihi: 23.08.2018
CAT.OP.MPA.181

(a) For flights under instrument meteorological conditions (IMC), the commander shall select a takeoff **alternate** aerodrome within **one hour flying time** at normal cruising speed if it would not be possible to return to the site of departure due to meteorological reasons.

(b) For IFR flights or when flying under VFR and navigating by means other than by reference to visual landmarks, the commander shall specify at least one destination alternate aerodrome in the operational flight plan unless:

(1) for a flight to any other land destination, the duration of the flight and the meteorological conditions prevailing are such that, at the estimated time of arrival at the site of intended landing, an approach and landing is possible under visual meteorological conditions (VMC); or

(2) the site of intended landing is isolated and no alternate is available; in this case, a point of no return (PNR) shall be determined.

(c) KAAN AIR will select **two destination alternate** aerodromes when:

(1) the appropriate weather reports and/or forecasts for the destination aerodrome indicate that during a period commencing one hour before and ending one hour after the estimated time of arrival, the weather conditions will be below the applicable planning minima; or

(2) **no meteorological information** is available for the destination aerodrome.

(d) KAAN AIR will specify any required alternate aerodrome(s) **in the operational flight plan.**

05.07.01 Landing Forcast
GM1 CAT.OP.MPA.181

(a) Meteorological data have been specified that conform to the standards contained in the Regional Air Navigation Plan and ICAO Annex 3. As the following meteorological data are point-specific, caution should be exercised when associating it with nearby aerodromes (or helidecks).

(b) Meteorological reports **(METARs)**

(1) Routine and special meteorological observations at offshore installations should be made during periods and at a frequency agreed between the meteorological authority and KAAN AIR. They should comply with the provisions contained in the meteorological section of the ICAO Regional Air Navigation Plan, and should conform to the standards and recommended practices, including the desirable accuracy of observations, promulgated in ICAO Annex 3.

(2) Routine and selected special reports are exchanged between meteorological offices in the METAR or SPECI (aviation selected special weather report) code forms prescribed by the World Meteorological Organisation.

(c) Aerodrome forecasts **(TAFs)**

(1) The aerodrome forecast consists of a concise statement of the mean or average meteorological conditions expected at an aerodrome or aerodrome during a specified period of validity, which is normally **not less than 9 hours**, or more than 24 hours in duration. The forecast includes surface wind, visibility, weather and cloud, and expected changes of one or more of these elements during the period. Additional elements may be included as agreed between the meteorological authority and KAAN AIR. Where these forecasts relate to offshore installations, barometric pressure and temperature should be included to facilitate the planning of helicopter landing and take-off performance.

(2) Aerodrome forecasts are most commonly exchanged in the TAF code form, and the detailed description of an aerodrome forecast is promulgated in the ICAO Regional Air Navigation Plan and also in ICAO Annex 3, together with the operationally desirable accuracy elements. In particular, the observed cloud height should remain within ±30 % of the forecast value in 70 % of cases, and the observed visibility should remain within ±30 % of the forecast value in 80 % of cases.

(d) Landing forecasts **(TRENDS)**

(1) The landing forecast consists of a concise statement of the mean or average meteorological conditions expected at an aerodrome or aerodrome during **the two-hour period immediately following the time of issue**. It contains surface wind, visibility, significant weather and cloud elements and other significant information, such as barometric pressure and temperature, as may be agreed between the meteorological authority and KAAN AIR.

(2) The detailed description of the landing forecast is promulgated in the ICAO Regional Air Navigation Plan and also in ICAO Annex 3, together with the operationally desirable accuracy of the forecast elements. In particular, the value of the observed cloud height and visibility elements should remain within ±30 % of the forecast values in 90 % of the cases.

(3) Landing forecasts most commonly take the form of routine or special selected meteorological reports in the METAR code, to which either the code words '**NOSIG**', i.e. no significant change expected; '**BECMG**' (becoming), or '**TEMPO**' (temporarily), followed by the expected change, are added. The 2-hour period of validity commences at the time of the meteorological report.

(05.08)- Fuel needed for the various stages of flight

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

CAT.OP.MPA.190 / CAT.OP.MPA.191 / CAT.OP.MPA.195 / AMC1 CAT.OP.MPA.195 / GM1 CAT.OP.MPA.195 / AMC1 CAT.OP.MPA.191(b)&(c)

05.08.01 Fuel policy
CAT.OP.MPA.150

(a) KAAN AIR has established fuel policy for the purpose of **flight planning** and **in-flight replanning** to ensure that every flight carries **sufficient fuel** for the planned operation and **reserves** to cover deviations from the planned operation. The fuel policy and any change to it require prior approval by TR DGCA.

(b) KAAN AIR will ensure that the planning of flights is **based upon** at least:

(1) procedures contained in the operations manual and:
- (i) data provided by the aircraft manufacturer; or
- (ii) current aircraft-specific data derived from a fuel consumption monitoring system; and

(2) the operating conditions under which the flight is to be conducted including:
- (i) aircraft fuel consumption data;
- (ii) anticipated masses;
- (iii) expected meteorological conditions; and
- (iv) air navigation services provider(s) procedures and restrictions.

(c) KAAN AIR will ensure that the **pre-flight** calculation of usable fuel required for a flight includes:

(1) **taxi fuel**;
(2) **trip fuel**;
(3) **reserve fuel** consisting of:
- (i) **contingency fuel**;
- (ii) **alternate fuel**, if a destination alternate aerodrome is required;

  GM1 CAT.OP.MPA.150(c)(3)(ii)

  The departure aerodrome may be selected as the destination alternate aerodrome.
- (iii) **final reserve fuel**; and
- (iv) **additional fuel**, if required by the type of operation; and

(4) **extra fuel** if required by the commander.

(d) KAAN AIR will ensure that **in-flight replanning** procedures for calculating usable fuel required when a flight has to proceed along a route or to a destination aerodrome other than originally planned includes:
(1) trip fuel for the remainder of the flight; and
(2) reserve fuel consisting of:
- (i) contingency fuel;
- (ii) alternate fuel, if a destination alternate aerodrome is required;
- (iii) final reserve fuel; and
- (iv) additional fuel, if required by the type of operation; and

(3) extra fuel if required by the commander.

05.08.02 PLANNING CRITERIA — HELICOPTERS
AMC3 CAT.OP.MPA.150(b) Fuel policy

KAAN AIR has based the company fuel policy, including calculation of the amount of **fuel to be carried**, on the following planning criteria:

(a) The amount of:
(1) **taxi fuel**, which should not be less than the amount expected to be used prior to take-off. Local conditions at the departure site and APU consumption should be taken into account;

(2) **trip fuel**, which should include fuel:
- (i) for take-off and climb from aerodrome elevation to initial cruising level/altitude, taking into account the expected departure routing;

(ii) from top of climb to top of descent, including any step climb/descent;
(iii) from top of descent to the point where the approach procedure is initiated, taking into account the expected arrival procedure; and
(iv) for approach and landing at the destination site;

(3) **contingency fuel**, which should be:
(i) for IFR flights, or for VFR flights in a hostile environment, 10 % of the planned trip fuel; or
(ii) for VFR flights in a non-hostile environment, 5 % of the planned trip fuel;

(4) **alternate fuel**, which should be:
(i) fuel for a missed approach from the applicable MDA/DH at the destination aerodrome to missed approach altitude, taking into account the complete missed approach procedure;
(ii) fuel for a climb from missed approach altitude to cruising level/altitude;
(iii) fuel for the cruise from top of climb to top of descent;
(iv) fuel for descent from top of descent to the point where the approach is initiated, taking into account the expected arrival procedure;
(v) fuel for executing an approach and landing at the destination alternate selected in accordance with CAT.OP.MPA.181; and
(vi) for helicopters operating to or from **helidecks** located in a **hostile environment**, 10 % of (a)(4)(i) to (v);

(5) **final reserve fuel**, which should be:
(i) for VFR flights navigating by day with reference to visual landmarks, **20 minutes' fuel at best range speed**; or
(ii) for IFR flights or when flying VFR and navigating by means other than by reference to visual landmarks or at night, fuel to fly for **30 minutes at holding speed at 1500 ft (450 m) above** the destination aerodrome in standard conditions calculated with the estimated mass on arrival above the alternate, or the destination, when no alternate is required; and

(6) **extra fuel**, which should be at the discretion of the commander.

(b) **Isolated aerodrome IFR procedure**

If KAAN AIR's fuel policy includes planning to an isolated aerodrome flying IFR, or when flying VFR and navigating by means other than by reference to visual landmarks, for which **a destination alternate does not exist**, the amount of fuel at departure should include:
(1) taxi fuel;
(2) trip fuel;
(3) contingency fuel calculated in accordance with (a)(3);
(4) **additional fuel** to fly for **2 hours at holding speed**, **including final reserve fuel**; and
(5) extra fuel at the discretion of the commander.

(c) Sufficient fuel should be carried at all times to ensure that **following the failure of an engine occurring** at the most critical point along the route, the helicopter is able to:
(1) descend as necessary and proceed to an adequate aerodrome;
(2) hold there for 15 minutes at 1500 ft (450 m) above aerodrome elevation in standard conditions; and
(3) make an approach and landing.

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06-MASS AND BALANCE

CAT.POL.MAB.100

(06.01)- Mass and Balance, Loading

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

GM1 CAT.POL.MAB.100(g) / CAT.POL.MAB.100

(a) During any phase of operation, the loading, mass and centre of gravity (CG) of the aircraft shall comply with the limitations specified in the RFM, or the operations manual if more restrictive.

(b) KAAN AIR will establish the mass and the CG of any aircraft by actual weighing prior to initial entry into service and thereafter at intervals of **4 (four) years** if individual aircraft masses are used, or nine years if fleet masses are used. The accumulated effects of modifications and repairs on the mass and balance shall be accounted for and properly documented. Aircraft shall be reweighed if the effect of modifications on the mass and balance is not accurately known.

(c) The weighing shall be accomplished by the manufacturer of the aircraft or by an approved maintenance organisation.

(d) KAAN AIR will determine the mass of all operating items and crew members included in the aircraft **dry operating mass** by weighing or by using standard masses. The influence of their position on the aircraft's CG shall be determined.

(e) KAAN AIR will establish the mass of the traffic load, including any ballast, by actual weighing or by determining the mass of the traffic load in accordance with standard passenger and baggage masses.

(1) In commercial air taxi; **standart masses** will be used,

(2) In offshore flight; traffic load will be **weighed**.

(f) In addition to standard masses for passengers and checked baggage, KAAN AIR will use standard masses for other load items, if it demonstrates to the TR DGCA that these items have the same mass or that their masses are within specified tolerances.

(g) KAAN AIR will determine the mass of the **fuel load** by using the actual density or, if not known, the density calculated in accordance with a method specified below, typical fuel density values are:

(1) Gasoline (piston engine fuel) – 0.71

(2) JET A1 (Jet fuel JP 1) – 0.79

(3) JET B (Jet fuel JP 4) – 0.76

(4) Oil – 0.88

(h) KAAN AIR will ensure that the loading of:

(1) its aircraft is performed under the supervision of **qualified personnel**; and

(2) traffic load is **consistent with the data** used for the calculation of the aircraft mass and balance.

(i) KAAN AIR will comply with additional structural limits such as the floor strength limitations, the maximum load per running metre, the maximum mass per cargo compartment and the maximum seating limit.

For helicopters, in addition, KAAN AIR will take account of **in-flight changes** in loading.

(06.02)- Principles and Methods involved in the Loading and in the Mass and Balance system

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

CAT.POL.MAB.100

The Commander is responsible for ensuring that the helicopter is loaded such that it remains in accordance with the centre of gravity limitations for the aircraft published in the RFM throughout a given flight.

Definitions - General:

- **Basic Empty Mass**: It is the mass of an aircraft plus standard items such as: unusable fuel and other unusable fluids, lubricating oil in engine and auxiliary units, fire extinguishers, pyrotechnics, emergency oxygen equipment, supplementary electronic equipment.
- **Dry Operating Mass**: The total mass of the helicopter ready for a specific type of operation excluding all usable fuel and traffic load.
- **Maximum Landing Mass**: The maximum permissible total aircraft mass on landing under normal circumstances.
- **Maximum Take-Off Mass - MTOM**: The maximum permissible total helicopter mass at takeoff.
- **Maximum Zero Fuel Mass**: It is the maximum permissible mass of an aircraft with no usable fuel.
- **Passenger classification**:
    - **Adults**, male and female, are defined as persons of an age of **12 years and above**.
    - **Children** are defined as persons of an age of **two years and above** but who are less than 12 years of age:
    - **Infants** are defined as persons who are **less than two years** of age.
- **Traffic Load**: The total mass of passengers, baggage and cargo, including any non-revenue load.

Definitions - Technical:

- **Arm** is the distance between the point at which a mass is located and the datum. The distance is measured mm.
- **Datums** All calculations required for the determination of the mass and balance are made using datums set by the manufacturer. One datum concerns the horizontal centre of gravity and the other the lateral centre of gravity.
- **Lateral centre of gravity** The position of the centre of gravity in relation to the lateral datum of the helicopter
- **Lateral datum** (Buttock Line) runs along the length of the helicopter in plan view, looking forward. Measurements starboard (right) of this line have a positive value in calculations; measurements port (left) of the line have a negative value in calculations.
- **Longitudinal centre of gravity** The result of all summed moments along the longitudinal datum divided by all summed masses.
- **Longitudinal datum** (Station 0) is 1635 mm in front of the nominal centre of gravity of the helicopter
- **Moment** is the result of the mass measured at a station multiplied by the arm. The result is given in kg-mm.
- **Optional equipment** is the equipment fitted to the helicopter for operational purposes.

(06.03)- Mass Values for Crew Members

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC2 CAT.POL.MAB.100(d)

(a) KAAN AIR will use the following mass values for **crew** to determine the dry operating mass:

(1) In offshofe flights; **actual masses** including any **crew baggage**;

(2) In commercial air taxi; **standard masses**, including hand baggage, of

- **85 kg for flight crew**/technical crew members and
- 75 kg for cabin crew members.

(b) KAAN AIR will correct the dry operating mass to account for any **additional baggage**. The position of this additional baggage should be accounted for when establishing the centre of gravity of the aircraft.

(06.04)- Mass Values for Passengers and Baggage

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC1 CAT.POL.MAB.100(e)

(a) The predetermined mass for hand baggage and clothing will be established by KAAN AIR on the basis of studies relevant to his particular operation. In any case,

it should not be less than:

(1) **4 kg for clothing**; and

(2) **6 kg for hand baggage**.

(b) **In offshore flights**; when determining the actual mass by weighing, passengers' personal belongings and hand baggage should be included. Such weighing should be conducted immediately prior to boarding the aircraft.

(c) **In commercial air taxi**; when determining the mass of passengers by using standard mass values, the standard mass values in Tables 2 below will be used. The standard masses include hand baggage and the mass of any infant carried by an adult on one passenger seat. Infants occupying separate passenger seats should be considered as children.

AMC1 CAT.POL.MAB.100(e) / (c) Table 2;
Standard masses for passengers — aircraft with a total number of passenger seats of 19 or less

Passenger seats:	**1-5**	**6-9**	**10-19**
Male	104 kg	96 kg	92 kg
Female	86 kg	78 kg	74 kg
Children	35 kg		

(1) On all helicopter flights where **no hand baggage is carried in the cabin** or where hand baggage is accounted for separately, **6 kg may be deducted** from male and female masses in Table 2.

Articles such as an overcoat, an umbrella, a small handbag or purse, reading material or a small camera are not considered as hand baggage.

(2) For helicopter operations in which a **survival suit** is provided to passengers, **3 kg** should be **added** to the **passenger mass value**.

(d) **Mass values for baggage**

- For aircraft with 19 passenger seats or less, the actual mass of checked baggage should be **determined by weighing.**

(e) **Revised standard masses** will not be used in KAAN AIR flights.

(f) On any flight identified as carrying a significant number of passengers whose masses, including hand baggage, are

expected to significantly **deviate from the standard passenger mass**, KAAN AIR will determine the actual mass of such passengers by weighing or by adding an adequate mass increment.

(g) If standard mass values for checked baggage are used and a significant number of passengers checked baggage is expected to significantly **deviate from the standard baggage mass**, KAAN AIR will determine the actual mass of such baggage by weighing or by adding an adequate mass increment.

(06.05)- Mass and Balance Data and Produce Documentation

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

CAT.POL.MAB.105

(a) KAAN AIR has established mass and balance data and produce mass and balance documentation prior to each flight specifying the load and its distribution. The mass and balance documentation shall enable the commander to determine that the load and its distribution is such that the mass and balance limits of the aircraft are not exceeded.

(b) **Where mass and balance data and documentation is generated by a computerised mass and balance system, the operator shall verify the integrity of the output data.**

(c) The person supervising the loading of the aircraft shall **confirm by hand signature** or equivalent that the load and its distribution are in accordance with the mass and balance documentation given to the commander. The commander shall indicate his/her acceptance **by hand signature** or equivalent.

SIGNATURE OR EQUIVALENT

AMC1 CAT.POL.MAB.105(c)

*Where a signature by hand is impracticable or it is desirable to arrange the equivalent verification by electronic means, the following conditions should be applied in order to make an electronic signature the equivalent **of a conventional hand-written signature:***

(1) electronic 'signing' by entering a personal identification number (PIN) code with appropriate security, etc.;

(2) the computer system logs information to indicate when and where each PIN code has been entered;

(3) the use of the PIN code is, from a legal and responsibility point of view, considered to be fully equivalent to signature by hand;

(4) the requirements for record keeping remain unchanged; and

(5) all personnel concerned are made aware of the conditions associated with electronic signature and this is documented.

(d) KAAN AIR has specified procedure for **last minute changes** explained in the further section.

(06.06)- Mass and Balance Documentation Contents

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

CAT.POL.MAB.105

(1) Aircraft registration and type;
(2) Flight identification, number and date;
(3) Name of the commander;
(4) Name of the person who prepared the document;
(5) Dry operating mass and the corresponding CG of the aircraft:
(6) Mass of the fuel at take-off and the mass of trip fuel;
(7) Mass of consumables other than fuel, if applicable;
(8) Load components including passengers, baggage, freight and ballast;
(9) Take-off mass, landing mass and zero fuel mass;
(10) Applicable aircraft CG positions; and
(11) **The limiting mass and CG values.**

The information above shall be available in flight planning documents or mass and balance systems. Some of this information may be contained in other documents readily available for use.

(06.07)- Last Minute Changes to the Load

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

CAT.POL.MAB.105

Any **last minute change** after the completion of the mass and balance documentation is brought **to the attention of the commander;**

Last minute change (LMC) limit:

- 1 passenger and/or 15 kg cargo and **new mass and balance documentation** is prepared.

(06.08)- Integrity of Mass and Balance data and Documentation generated by a Computerised System

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC1 CAT.POL.MAB.105(b)

KAAN AIR will verify the **integrity** of mass and balance data and documentation generated by a computerised mass and balance system, **at intervals not exceeding 6 months**. KAAN AIR has established a system; **Flight Operations Manager** to **manually check** that amendments of its input data are incorporated properly in the system and that the system is operating correctly on a continuous basis.

06.09-Instructions and Data for the Calculation of the Mass and Balance

CAT.POL.MAB.100

(06.09.00)- WEIGHING of the AIRCRAFT

Revizyon No: 13 Revizyon Tarihi: 23.07.2025

CAT.POL.MAB.100 / AMC1 CAT.POL.MAB.100(b)

KAAN AIR will establish the mass and the CG of any aircraft by **actual weighing** prior to initial entry into service and thereafter at intervals of **four years** (4 years) if individual aircraft masses are used, or nine years if fleet masses are used.

The accumulated effects of **modifications and repairs** on the mass and balance will be accounted for and properly documented. Aircraft will be **reweighed** if the **effect of modifications** on the mass and balance is **not accurately known**.

(a) **New aircraft** that have been **weighed at the factory** may be placed into operation without reweighing if the mass and balance records have been adjusted for alterations or modifications to the aircraft. Aircraft transferred from one TR/EU operator to another TR/EU operator do not have to be weighed prior to use by the receiving operator; unless more than 4 years have elapsed since the last weighing.

(b) The mass and centre of gravity (CG) position of an aircraft **will be revised** whenever the cumulative changes to the dry operating mass **exceed ±0.5 % of the maximum landing mass**. This may be done by weighing the aircraft or by calculation. If the RFM requires to record changes to mass and CG position below these thresholds, or to record changes in any case, and make them known to the commander, mass and CG position will be revised accordingly and made known to the commander.

(c) When weighing an aircraft, normal **precautions** will be taken consistent with good practices such as:

(1) checking for **completeness** of the aircraft and equipment;

(2) determining that **fluids** are properly accounted for;

(3) ensuring that the aircraft is **clean**; and

(4) ensuring that weighing is accomplished in an **enclosed building**.

(d) Any **equipment used for weighing** will be properly **calibrated**, zeroed, and used in accordance with the manufacturer's instructions. Each scale will be calibrated either by the manufacturer, by a civil department of weights and measures or by an appropriately authorised organisation **within two years** or **within a time period defined by the manufacturer** of the weighing equipment, **whichever is less**.

The equipment will enable the mass of the aircraft to be established accurately. One single accuracy criterion for weighing equipment cannot be given. However, the weighing accuracy is considered satisfactory if the accuracy criteria in Table1 are met by the individual scales/cells of the weighing equipment used:

Table 1

Accuracy criteria for weighing equipment

For a scale/cell load	An accuracy of
Below 2 000 kg	±1 %
From 2 000 kg to 20 000 kg	±20 kg
Above 20 000 kg	±0.1 %

After any weighing activity or Chart C revision completion;

A copy of the filled and signed document Chart C will be sent **to Flight Operations Manager** **by Continuing Airworthiness Management department (CAMO) related engineer** to provide new Basic Mass, CG and Moment numbers to flight crews. Then Flight Operations Manager will revise OM-B 06.09.04 "Dry Operating Mass and corresponding centre of gravity (CG) or index" table and apply for approval of TR DGCA, and revise draft FOF-22 Mass and Balance Computation form to provide actual numbers to flight crews.

(06.09.01)- Calculation System (e.g. index system)

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

CAT.POL.MAB.100

Rotorcraft Flight Manual - AW139

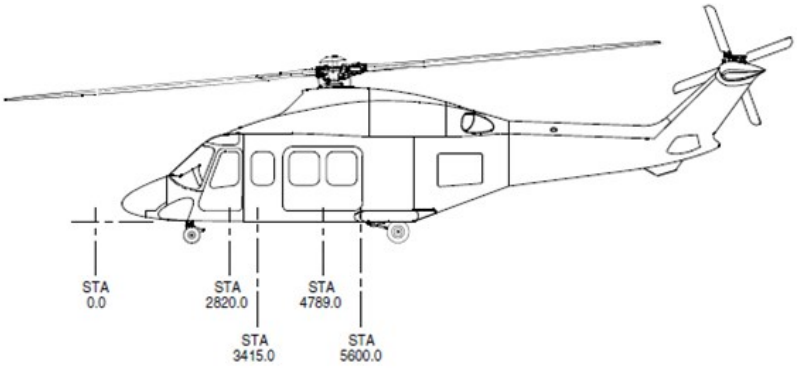
GENERAL

This Section provides information for the mass and balance computation of the AW139 helicopter. It is the **pilot's responsibility** to ensure that the helicopter is properly loaded to maintain for the duration of the flight the center of gravity (CG) within the limitations defined in RFM Section 1.

DATUM LINE LOCATIONS

Figure 6-1 and Figure 6-2 present fuselage stations and butt lines data to aid in mass and balance computations.

Figure 6-1



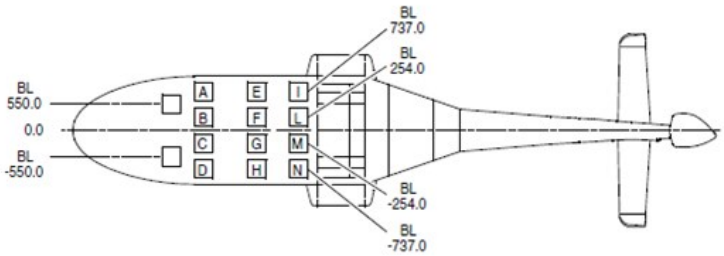
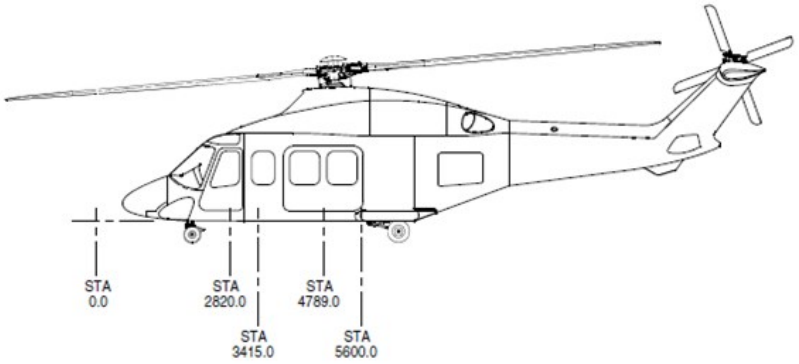
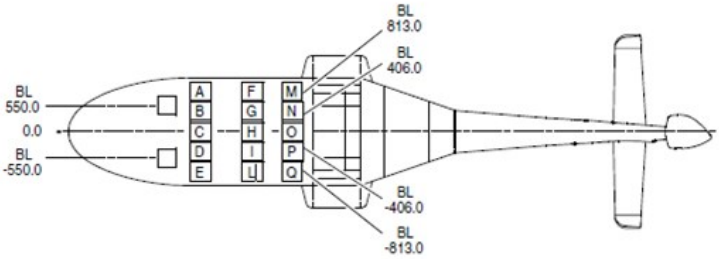


Figure 6-2





LOADING

The tables, name are below and details are in RFM Section 6, give the recommended passenger and other loading sequence to be followed for the 12 or 15 seats configurations, in order to maintain the center of gravity (CG) within the limits. The passengers loading sequence may be altered, provided the pilot ensures that the aircraft C of G limitations are not exceeded.

PASSENGERS (12 SEATS) ROW STATION (mm)
PASSENGERS (15 SEATS) ROW STATION (mm)
WEIGHTS - ARMS AND MOMENTS, LONGITUDINAL MOMENTS
WEIGHTS - ARMS AND MOMENTS (12, 15 PASSENGERS), LATERAL MOMENTS
WEIGHTS - ARMS AND MOMENTS, LONGITUDINAL MOMENTS for;

- ENGINE OIL (Arm 6878)
- MAIN TRANSMISSION OIL (Arm 5094)
- INTERMEDIATE GEAR BOX OIL (Arm 12315)
- TAIL GEAR BOX OIL (Arm 13410)
- BAGGAGE
- TOTAL FUEL
- UNUSABLE FUEL

(06.09.02)- Information and Instructions for completion of Mass and Balance documentation, including manual and computer generated types

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

CAT.POL.MAB.100

Rotorcraft Flight Manual - AW139

WEIGHT AND BALANCE DATA RESPONSIBILITY

The aircraft manufacturer inserts all helicopter identifying data on the various charts. This record constitutes the basic weight and balance data of the helicopter, to which the Rotorcraft Flight Manual was assigned, for the condition shown on chart A, explained below. KAAN AIR will keep this data up-to-date by recording all changes made to the configuration of the helicopter.

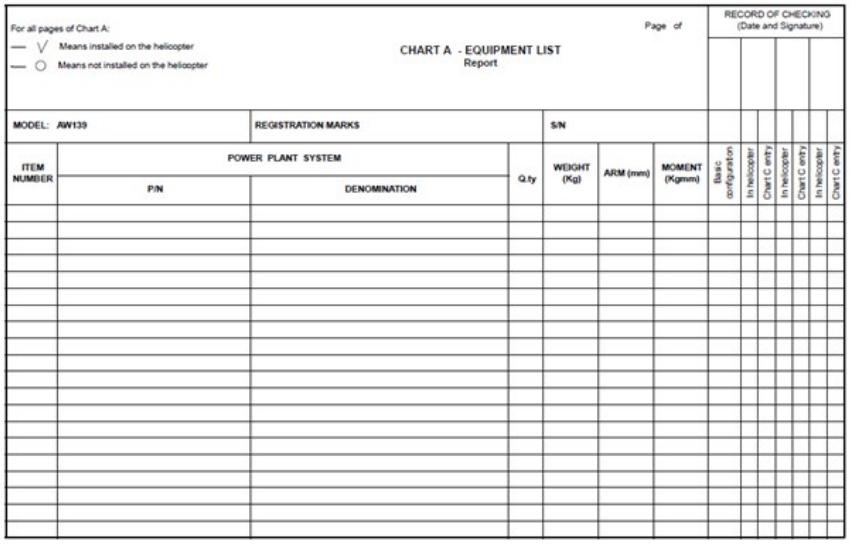
WEIGHT AND BALANCE DETERMINATION

Instructions for weight and balance determination are herewith enclosed with instructions for use of charts to enable the operator to obtain all necessary data as to basic helicopter configuration, empty weight and center of gravity. These charts will also provide for continuous control of weight and balance of the helicopter. This system of weight and balance computation requires the use of charts and forms. They are identified as follows:

Chart A - Equipment List.
Chart B - Helicopter Weighing Record.
Chart C - Basic Weight and Balance Record.
Chart D - Data for Helicopter Weight and Balance Computation
Chart E - Weight and Balance Computation

USE OF CHARTS AND FORMS

USE OF CHART A



For all pages of Chart A:
— V Means installed on the helicopter
— O Means not installed on the helicopter

CHART A - EQUIPMENT LIST
Report

Page of

RECORD OF CHECKING (Date and Signature)

MODEL: AW139	REGISTRATION MARKS	S/N

ITEM NUMBER	POWER PLANT SYSTEM		Q.ty	WEIGHT (Kg)	ARM (mm)	MOMENT (Kgmm)	Basic configuration	In helicopter	Chart C entry	In helicopter	Chart C entry	In helicopter	Chart C entry
	P/N	DENOMINATION											

The Chart A gives the weight, arm and moment of all the standard and optional equipment. The manufacturer of the helicopter places check marks in the "Basic Configuration" column to identify the items of equipment in the helicopter for the weighing condition. A check (V) in the columns headed "In Helicopter" indicates the presence of the item in the helicopter, and a zero (0) indicates its absence. The next columns of chart A will permit inspection of the helicopter for equipment actually installed. When making an inventory, note whether any items of equipment have been installed or removed and if so enter corresponding weight and moment change on Chart C.

Subsequent check list inventories shall be carried out in the following cases:

1. When the helicopter undergoes modification, major repair or overhaul.
2. When changes in equipment are made for a different type of operation.
3. When the helicopter is reweighed.

USE OF CHART B

CHART B - HELICOPTER WEIGHING RECORD							Sheet 1 of 2
MODEL:	S/N:		REGISTRATION MARKS:				
DATE:	PLACE:		SIGNATURE:				
Reason for weighing:							
Scale type:							
JACKPOINTS	SCALE READING	TARE	NET WEIGHT	STA (1)	LONGITUDINAL MOMENT	BL (2)	LATERAL MOMENT
	(Kg)	(Kg)	(Kg)	(mm)	(Kgmm)	(mm)	(Kgmm)
FORWARD				3160		0	
LH AFTERWARD				6700		-905	
RH AFTERWARD				6700		905	
TOTAL (as weighed) (to Sht. 2 of 2)							

Note 1
The forward lower Central Cabin is provided by two FWD jack points, only one FWD jack point is assured by using a proper tool which collect both jacking points.
The Station Reference Datum (STA 0) is located 3160 mm forward the FWD jack points. Therefore the STA are positive.
E = Distance from the reference datum (STA 0) to the FWD jackpoint Station of 3160 mm.
F = Distance from the reference datum (STA 0) to the LH and RH aft jackpoints Station of 6700 mm.

Note 2
The Buttock Line Reference Datum (BL 0) is located on the fuselage Center Line.
Therefore the BL are negative on the Left Hand side and positive on the Right Hand side.

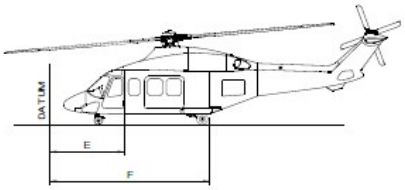


CHART B - HELICOPTER WEIGHING RECORD					Sheet 2 of 2
DESCRIPTION	NET WEIGHT (Kg)	STA (mm)	LONG. MOMENT (Kgmm)	BL (mm)	LAT. MOMENT (Kgmm)
TOTAL (as weighed) (from Sht. 1 of 2)					
SUBTRACT (from Tab. 1)					
ADD (from Tab. 2)					
BASIC AIRCRAFT (to Chart C)					
TABLE 1 ITEMS WEIGHED BUT NOT PART OF BASIC WEIGHT					
DENOMINATION	WEIGHT (Kg)	STA (mm)	LONG. MOMENT (Kgmm)	BL (mm)	LAT. MOMENT (Kgmm)
TOTAL					
TABLE 2 BASIC ITEMS NOT INSTALLED WHEN WEIGHED					
DENOMINATION	WEIGHT (Kg)	STA (mm)	LONG. MOMENT (Kgmm)	BL (mm)	LAT. MOMENT (Kgmm)
TOTAL					
Reasons of the weighing:		Type Scales:			
NOTE : Remove the weight of the mission equipment items, which are pointed out in Chart A in [ ]					

1. Enter the actual scale readings in the first column of sheet 1. Subtract tare, if any, from the scale readings to obtain the net weight.
2. Multiply the net weights by their respective arms.
3. Add the net weight and moments.
4. Divide the total moment by the net weight to obtain "as weighed" CG position. Transfer the "TOTAL" (as weighed) weight arm and moment to the sheet 2 of Chart B.
5. Subtract the total weight and moment of equipment weighed but not part of the basic helicopter (list these items in column one).
6. Add the weight and moment of unusable fuel.
7. Add the total weight and moment of the basic items not in helicopter when weighed (list these in column two). Added items shall be marked on Chart A.
8. Enter the **new basic weight and moment** on Chart C.

USE OF CHART C

CHART C BASIC WEIGHT AND BALANCE RECORD															Page N°
MODEL			S/N				REGISTRATION MARKS								
DATE	Item n° see Chart A IN (1)	Item n° see Chart A OUT (2)	DENOMINATION	LOADING CHANGE WGT (3) (Kg)	LOADING CHANGE STA CG (mm)	LOADING CHANGE LONG MOMENT (Kgmm)	LOADING CHANGE BL CG (mm)	LOADING CHANGE LATERAL MOMENT (Kgmm)	BASIC WEIGHT, MOMENT & COG WGT (Kg)	BASIC WEIGHT, MOMENT & COG LONG MOMENT (Kgmm)	BASIC WEIGHT, MOMENT & COG STA CG (mm)	BASIC WEIGHT, MOMENT & COG LATERAL MOMENT (Kgmm)	BASIC WEIGHT, MOMENT & COG BL CG (mm)	SIGNAT.	
Note 1 IN = installed component Note 2 OUT = removed component Note 3 Weight of an installed component is positive (+) Weight of a removed component is negative (-)															

Chart C is a **continuous history of the basic weight and moment** resulting from modifications and equipment is considered the current weight and balance status of the basic helicopter. Make additions or subtractions to the basic weight and moment in Chart C as follows:

1. When the helicopter undergoes modification, major repair or overhaul.
2. When changes in equipment are made for a different type of operation.
3. When the helicopter is reweighed.

Note

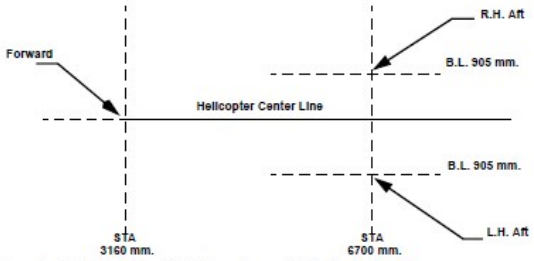
If any equipment is not listed on Chart A, determine its weight and arm, and list corresponding data on Charts A and C.

USE OF CHART D

CHART D - DATA FOR HELICOPTER WEIGHT & BALANCE COMPUTATION

MODEL AW139

JACKPOINTS LOCATION



Longitudinal STA. 0 (Datum) is 3160 mm. Forward of the front jackpoint.

TYPICAL DATA

		ARM STA (mm.)	ARM BL (mm.)	WEIGHT (Kg.)
FUEL	Capacity		0	
	Unusable	6206	0	16
ENGINE OIL	Capacity	6878	0	16
	Undrainable	—	—	0
	Baggage	7700		

NOTE 1 - For pilot and crew station and for further information see Section 6 of this Flight Manual.

NOTE 2 - For further information see specific section of this Flight Manual.

NOTE 3 - Empty weight includes undrainable oil and unusable fuel.

The Chart D provides information necessary for weight and balance computation.

USE OF CHART E

CHART E - WEIGHT & BALANCE COMPUTATION FORM - (12 passengers)						
MODEL	S/N	REGISTRATION MARKS		DATE	PLACE	COMPUTED BY
Ref.	ITEM	WEIGHT (Kg)	STA (mm)	LONG. MOMENT (Kgmm)	BL (mm)	LAT. MOMENT (Kgmm)
1	HELICOPTER EMPTY (Ref. To Chart C)					
2	PILOT		2820		550	
3	COPILOT		2820		-550	
4	PASSENGER A		3415		737	
5	PASSENGER B		3415		254	
6	PASSENGER C		3415		-254	
7	PASSENGER D		3415		-737	
8	PASSENGER E		4789		737	
9	PASSENGER F		4789		254	
10	PASSENGER G		4789		-254	
11	PASSENGER H		4789		-737	
12	PASSENGER I		5600		737	
13	PASSENGER L		5600		254	
14	PASSENGER M		5600		-254	
15	PASSENGER N		5600		-737	
16	LOOSE EQUIPMENT					
17	CABIN LOAD					
18	BAGGAGE COMPARTMENT LOAD		7700			
19						
20						
21	FUEL					
22	OIL		6878		0	
23						
24	TOTAL WEIGHT					
25	BALLAST (If required)					
26	TAKE-OFF CONDITION					
LIMITATIONS		REMARKS				
Refer to Section 1						

CHART E - WEIGHT & BALANCE COMPUTATION FORM - (15 passengers)						
MODEL	S/N	REGISTRATION MARKS		DATE	PLACE	COMPUTED BY
Ref.	ITEM	WEIGHT (Kg)	STA (mm)	LONG. MOMENT (Kgmm)	BL (mm)	LAT. MOMENT (Kgmm)
1	HELICOPTER EMPTY (Ref. To Chart C)					
2	PILOT		2820		550	
3	COPILOT		2820		-550	
4	PASSENGER A		3449		813	
5	PASSENGER B		3415		406	
6	PASSENGER C		3415		0	
7	PASSENGER D		3415		-406	
8	PASSENGER E		3449		-813	
9	PASSENGER F		4789		813	
10	PASSENGER G		4789		406	
11	PASSENGER H		4789		0	
12	PASSENGER I		4789		-406	
13	PASSENGER L		4789		-813	
14	PASSENGER M		5556		813	
15	PASSENGER N		5600		406	
16	PASSENGER O		5600		0	
17	PASSENGER P		5600		-406	
18	PASSENGER Q		5556		-813	
19	LOOSE EQUIPMENT					
20	CABIN LOAD					
21	BAGGAGE COMPARTMENT LOAD		7700			
22						
23						
24	FUEL					
25	OIL		6878		0	
26						
27	TOTAL WEIGHT					
28	BALLAST (If required)					
29	TAKE-OFF CONDITION					
LIMITATIONS		REMARKS				
Refer to Section 1						

The Chart E serves as a **work sheet** and **records the calculations** and any corrections that must be made to ensure that **helicopter will be within weight and CG limits.**

Note

A Chart E shall be filled prior to any flight.

1. Enter the helicopter basic weight and moment. Obtain these figures from the last entry on Chart E.
2. Enter the weight of all applicable items in the marked "Weight". Obtain the corresponding arms from Chart D and calculate the moments.
3. Add weight and moments. Divide total moment by total weight to obtain CG arm.
4. **Ascertain that CG is within allowable limits.**
5. Should corrections be required, re-adjust ballast to return CG within allowable limits.

(06.09.03)- Limiting Masses and Centre of Gravity (CG) for the types, variants or individual aircraft

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

CAT.POL.MAB.100

Refer to OM B section 01.01.05 Mass and Centre of Gravity (CG) with the pictorial graphics.

(06.09.04)- Dry Operating Mass and corresponding Centre of Gravity (CG) or index

Revizyon No: 14 Revizyon Tarihi: 26.11.2025

CAT.POL.MAB.100 / RFM

Below numbers are given in the actual weighing of related registered helicopters for below mentioned dates, originals are in the "Appendix B.AW139.06.09.04 TC-HKB, TC-HZG wb" files:

1) AIR TAXI / OFFSHORE / TC-HKB

MODEL	S/N	REG. MARK	DATE	PLACE		
AW-139	41005	TC-HKB	03.01.2023	KAAN		
Ref.	**ITEM**	**Weight (Kg)**	**STA (mm)**	**Long Mom. (Kgmm)**	**Place BL mm**	**Lat Mom. (Kgmm)**
	HELICOPTER EMPTY	4.375,5	5.558	24.322.110	5,48	23.982,5

2a) AIR TAXI / TC-HZG (6 Pax)

MODEL	S/N	REG. MARK	DATE	PLACE		
AW-139	31725	TC-HZG	05.11.2025	KAAN		
Ref.	**ITEM**	**Weight (Kg)**	**STA (mm)**	**Long Mom. (Kgmm)**	**Place BL mm**	**Lat Mom. (Kgmm)**
	HELICOPTER EMPTY	4.873	5.294,7	25.801.050	2,69	13.122,5

2b) AIR TAXI / TC-HZG (8 Pax)

MODEL	S/N	REG. MARK	DATE	PLACE		
AW-139	31725	TC-HZG	05.11.2025	KAAN		
Ref.	**ITEM**	**Weight (Kg)**	**STA (mm)**	**Long Mom. (Kgmm)**	**Place BL mm**	**Lat Mom. (Kgmm)**
	HELICOPTER EMPTY	4.899	5.290,6	25.918.610	2,68	13.122,5

(06.09.05)- Sample Mass and Balance Sheet(s)

Revizyon No: 14 Revizyon Tarihi: 26.11.2025

CAT.POL.MAB.100 / CAT.POL.MAB.105

TC-HKB - Sample Sheet:

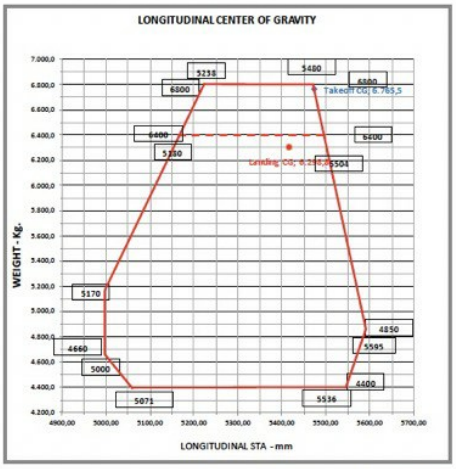
AW139 WEIGHT AND BALANCE COMPUTATION FORM

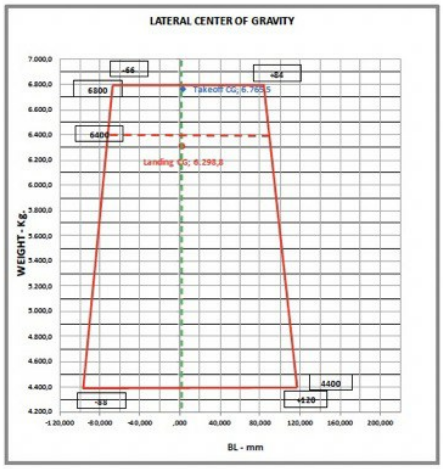
	LEFT SEAT (kg)		RIGHT SEAT (kg)	
Co-Pilot:	85	Pilot:	85	TC-HKB
Row 1	120	120	120	120
Row 2	80	80	80	80
Row 3				

Baggage	150	(kg)
Flight Time	70	(minutes)
Takeoff Fuel	1270	(kg)
Landing Fuel	803	(kg)
Takeoff Weight	6765,5	(kg)

Useful Payload: 950

	Fuel Calculation For Flight	
	Trip Fuel	Total Fuel
Kilograms		
Liters		
US Gallons		
Pounds (lbs.)		





WEIGHT AND BALANCE COMPUTATION FORM

MODEL	S/N	REG.	DATE	PLACE	COMPUTED BY
AW139	41005	TC-HKB	3.01.2023	KAAN	KAAN TECHNIC

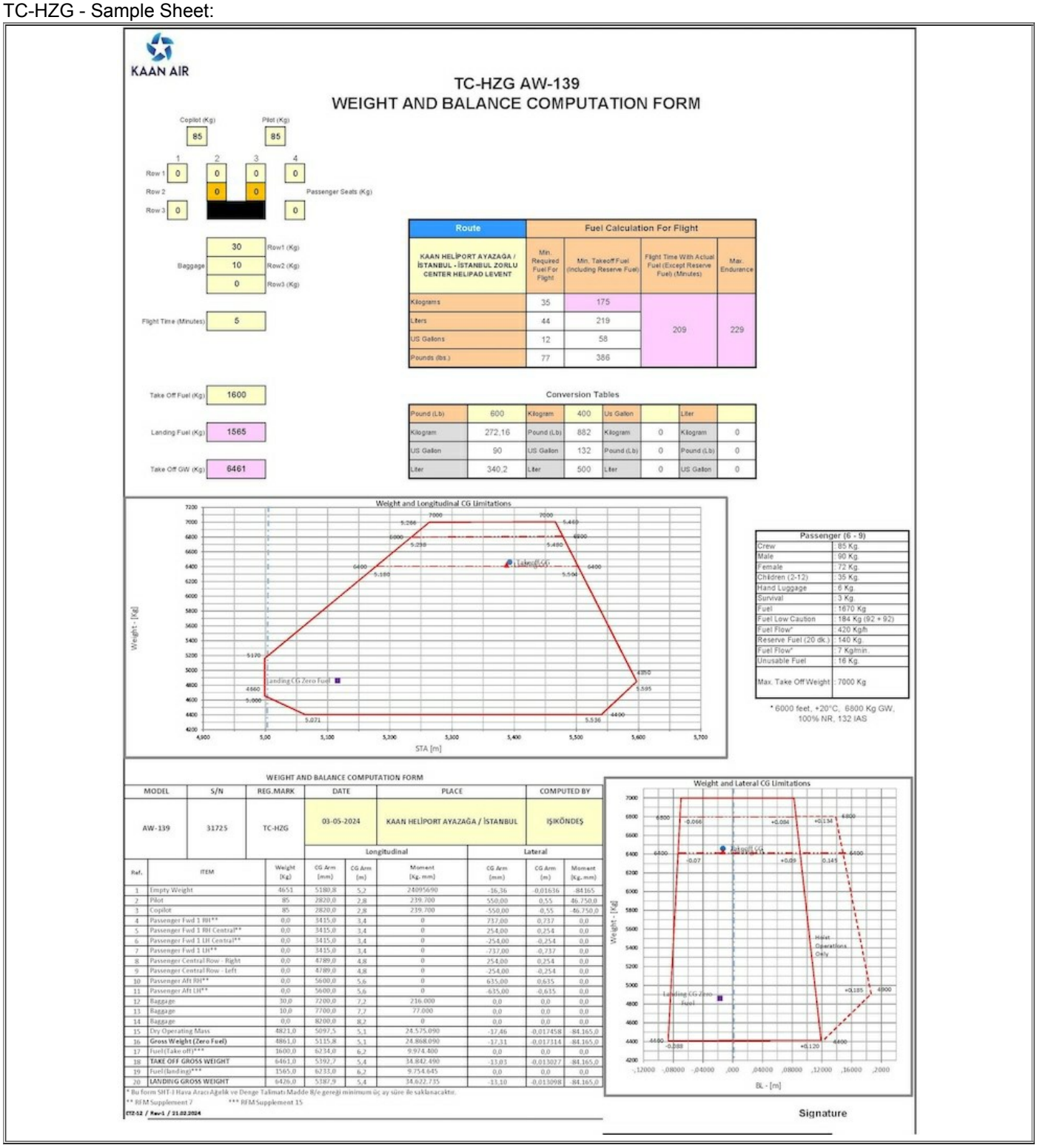
Ref.	ITEM	Weight (Kg)	STA (mm)	Long Mom. (Kgmm)	Place BL mm	Lat Mom. (Kgmm)
1	HELICOPTER EMPTY	4.375,5	5558	24.322.110	5,48	23.982,5
2	PILOT (RIGHT SEAT)	85	2820	239.700	550,00	46.750
3	COPILOT (LEFT SEAT)	85	2820	239.700	-550,00	-46.750
4	FWD-A-RIGHT	120	3415	409.800	737,00	88.440
5	FWD-B-RIGHT	120	3415	409.800	254,00	30.480
6	FWD-C-LEFT	120	3415	409.800	-254,00	-30.480
7	FWD-D-LEFT	120	3415	409.800	-737,00	-88.440
8	MID-E-RIGHT	80	4789	383.120	737,00	58.960
9	MID-F-RIGHT	80	4789	383.120	254,00	20.320
10	MID-G-LEFT	80	4789	383.120	-254,00	-20.320
11	MID-H-LEFT	80	4789	383.120	-737,00	-58.960
12	AFT-I-RIGHT	0	5600	0	737,00	0
13	AFT-L-RIGHT	0	5600	0	254,00	0
14	AFT-M-LEFT	0	5600	0	-254,00	0
15	AFT-N-LEFT	0	5600	0	-737,00	0
16	Baggage FWD		7200	0	0,00	0
17	Baggage CENTER	150	7700	1.155.000	0,00	0
18	Baggage AFT		8200	0	0,00	0
19	Operating Weight (incl 2 pilots)	5495,5	5300	29.128.190	4,36	23.983
20	Fuel (takeoff)	1.270,0	6229	7.910.830	0,00	0
21	TOTAL WEIGHT (T/O)	6.765,5	5475	37.039.020	3,54	23.983
22	Operating Weight (incl 2 pilots)	5.495,5	5300	29.128.190	4,36	23.983
23	Fuel (landing)	803,3	6219	4.996.037	0,00	0
24	TOTAL WEIGHT (LDG)	6.298,8	5418	34.124.227	3,81	23.983

ROUTE	
LTAI	ABDULHAMITHAN
DATE	
FLT NO	
STANDARD WEIGHTS	
Crew	: 85 kg
Male	: 92 kg
Female	: 74 kg
Hand Luggage	: 6 kg
Max. Fuel	: 1670 kg
Fuel Flow	: 400 kg/h
Fuel Flow	: 6,66 kg/min

FOF-08 / REV-9 / 20.06.2023

Commander's Sign.

TC-HZG - Sample Sheet:



KAAN AIR

TC-HZG AW-139
WEIGHT AND BALANCE COMPUTATION FORM

Copilot (Kg): 85 | Pilot (Kg): 85

	1	2	3	4
Row 1	0	0	0	0
Row 2		0	0	
Row 3	0			0

Passenger Seats (Kg)

Baggage: 30 (Row1 (Kg)), 10 (Row2 (Kg)), 0 (Row3 (Kg))

Flight Time (Minutes): 5

Take Off Fuel (Kg): 1600
Landing Fuel (Kg): 1565
Take Off GW (Kg): 6461

Route	Fuel Calculation For Flight			
KAAN HELİPORT AYAZAĞA / İSTANBUL - İSTANBUL ZORLU CENTER HELIPAD LEVENT	Min. Required Fuel For Flight	Min. Takeoff Fuel (Including Reserve Fuel)	Flight Time With Actual Fuel (Except Reserve Fuel) (Minutes)	Max. Endurance
Kilograms	35	175	209	229
Liters	44	219		
US Gallons	12	58		
Pounds (lbs.)	77	386		

Conversion Tables

Pound (Lb)	600	Kilogram	400	Us Gallon		Liter	
Kilogram	272,16	Pound (Lb)	882	Kilogram	0	Kilogram	0
US Gallon	90	US Gallon	132	Pound (Lb)	0	Pound (Lb)	0
Liter	340,2	Liter	500	Liter	0	US Gallon	0

Weight and Longitudinal CG Limitations

Passenger (6 - 9)	
Crew	: 85 Kg.
Male	: 90 Kg.
Female	: 72 Kg.
Children (2-12)	: 35 Kg.
Hand Luggage	: 6 Kg.
Survival	: 3 Kg.
Fuel	: 1670 Kg
Fuel Low Caution	: 184 Kg (92 + 92)
Fuel Flow*	: 420 Kg/h
Reserve Fuel (20 dk.)	: 140 Kg.
Fuel Flow*	: 7 Kg/min.
Unusable Fuel	: 16 Kg.
Max. Take Off Weight	: 7000 Kg.

* 6000 feet, +20°C, 6800 Kg GW, 100% NR, 132 IAS

WEIGHT AND BALANCE COMPUTATION FORM

MODEL	S/N	REG.MARK	DATE	PLACE	COMPUTED BY
AW-139	31725	TC-HZG	03-05-2024	KAAN HELİPORT AYAZAĞA / İSTANBUL	IŞIKÖNDEŞ

Ref.	ITEM	Weight (Kg)	Longitudinal CG Arm (mm)	Longitudinal CG Arm (m)	Longitudinal Moment (Kg. mm)	Lateral CG Arm (mm)	Lateral CG Arm (m)	Lateral Moment (Kg. mm)
1	Empty Weight	4651	5180,8	5,2	24095690	-16,36	-0,01636	-84165
2	Pilot	85	2820,0	2,8	239.700	550,00	0,55	46.750,0
3	Copilot	85	2820,0	2,8	239.700	-550,00	0,55	-46.750,0
4	Passenger Fwd 1 RH**	0,0	3415,0	3,4	0	737,00	0,737	0,0
5	Passenger Fwd 1 RH Central**	0,0	3415,0	3,4	0	254,00	0,254	0,0
6	Passenger Fwd 1 LH Central**	0,0	3415,0	3,4	0	-254,00	-0,254	0,0
7	Passenger Fwd 1 LH**	0,0	3415,0	3,4	0	-737,00	-0,737	0,0
8	Passenger Central Row - Right	0,0	4789,0	4,8	0	254,00	0,254	0,0
9	Passenger Central Row - Left	0,0	4789,0	4,8	0	-254,00	-0,254	0,0
10	Passenger Aft RH**	0,0	5600,0	5,6	0	635,00	0,635	0,0
11	Passenger Aft LH**	0,0	5600,0	5,6	0	-635,00	-0,635	0,0
12	Baggage	30,0	7200,0	7,2	216.000	0,0	0,0	0,0
13	Baggage	10,0	7700,0	7,7	77.000	0,0	0,0	0,0
14	Baggage	0,0	8200,0	8,2	0	0,0	0,0	0,0
15	Dry Operating Mass	4821,0	5097,5	5,1	24.575.090	-17,46	-0,017458	-84.165,0
16	**Gross Weight (Zero Fuel)**	4861,0	5115,8	5,1	24.868.090	-17,31	-0,017114	-84.165,0
17	Fuel (Take off)***	1600,0	6234,0	6,2	9.974.400	0,0	0,0	0,0
18	**TAKE OFF GROSS WEIGHT**	6461,0	5392,7	5,4	34.842.490	-13,03	-0,013027	-84.165,0
19	Fuel (landing)***	1565,0	6233,0	6,2	9.754.645	0,0	0,0	0,0
20	**LANDING GROSS WEIGHT**	6426,0	5387,9	5,4	34.622.735	-13,10	-0,013098	-84.165,0

* Bu form SHT-1 Hava Aracı Ağırlık ve Denge Talimatı Madde B/e gereği minimum üç ay süre ile saklanacaktır.
** RFM Supplement 7 *** RFM Supplement 15
CTZ-52 / Rev-1 / 21.02.2024

Weight and Lateral CG Limitations

Signature

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07-HELICOPTER SYSTEMS

AMC3 ORO.MLR.100 / RFM

(07.01)- Helicopter Systems, related controls and indications and operating instructions (consideration should be given to use the ATA number system when allocating chapters and numbers)

Revizyon No: 12 Revizyon Tarihi: 03.05.2024

AMC3 ORO.MLR.100 / RFM

Rotorcraft Flight Manual of AW139 can be found is at the Appendix of OM-B;

- RFM + Supplements AW139 Rev-xx (last copy).

RFM has the Sections, **in accordance with the existing company helicopters**; below inside of:

- Section 1 Limitations
- Section 2 Normal Procedures
- Section 3 Emergency and Malfunction Procedures
- Section 4 Performance Data
- Section 5 Optional Equipment SUPPLEMENTS
- Section 6 Weight and Balance
- Section 7 System Description
- Section 8 Handling, Servicing and Maintenance
- Section 9 Supplemental Performance Information
- -----
- Supplement 1 Rotor Brake
- Supplement 2 Ventilation Kit, Heating and Air Conditioning Systems
- Supplement 9 Ditching Configurations
- Supplement 10 Crash Position Indicator with Deployable ELT
- Supplement 12 CATEGORY A Operations
- Supplement 15 Auxiliary Fuel Tank
- Supplement 18 Second Radar Altimeter RT300
- Supplement 21 HONEYWELL Weather Radar SERIES
- Supplement 25 Traffic Advisory System KTA 970
- Supplement 28 EURONAV Digital Map System
- Supplement 31 Increased Baggage Compartment Load
- Supplement 34 4 Axis Enhanced Flight Director (EPIC Phase 4)
- Supplement 35 Heated Windshield System
- Supplement 37 Second GPS System
- Supplement 40 4 Axis Basic Flight Director (EPIC Phase 4)
- Supplement 50 Increased Gross Weight 6800 kg
- Supplement 51 TAKE-OFF AND LANDING ALTITUDE EXTENSION (NINE (9) PASSENGER SEAT CONFIGURATION)
- Supplement 58 MAX VIZ Series IR Camera
- Supplement 61 ADDITIONAL SECONDARY LANDING LIGHT
- Supplement 67 4 Axis Enhanced FD (EPIC S/W Phase 5,6&7)
- Supplement 68 EPIC S/W Phase 5, 6 & 7 Additional Functions
- Supplement 70 4 AXIS BASIC FLIGHT DIRECTOR (EPIC SOFTWARE PHASE 5 AND LATER)
- Supplement 74 Enhanced LANDING LIGHT Configuration
- Supplement 79 EPIC SOFTWARE PHASE 7 AND LATER SPECIFIC FUNCTIONS
- Supplement 80 RNP OPERATIONS (EPIC PHASE 7 AND LATER)
- Supplement 81 EGPWS MK XXII-30 Enhanced Ground Proximity Warning System
- Supplement 82 TCAS II
- Supplement 85 BATTERIES in Parallel (Increased Engine Starting) KIT
- Supplement 87 HEATING/VENTILATION AND AIR CONDITIONING SYSTEMS (ENVIRO)
- Supplement 89 Circular Force Active Vibration Control System
- Supplement 90 Weight Extension 7000 kg
- Supplement 97 CATEGORY A ENHANCED OFFSHORE ELEVATED HELIDECK PROCEDURES

And, also Appendix section has :

- Appendix B.AW139.09.01 Aircraft Specification and Differences List (AW139)

- Appendix B.AW139.CL NCL Normal Checklist AW139 (TC-Hxx)

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08-LOADING

CAT.POL.MAB.100 / AMC1 CAT.OP.MPA.160 / CAT.OP.MPA.160 / AMC2 CAT.OP.MPA.160

(08.01)- Loading, Unloading and Securing the load in the aircraft

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

CAT.POL.MAB.100 / AMC1 CAT.OP.MPA.160 / AMC2 CAT.OP.MPA.160 / CAT.OP.MPA.160

A manifest must be created for every flight on which persons or cargo are carried. Prior to the flight the Commander must ensure that the passengers are securely seated and that cargo is safely loaded. The Commander may delegate this task to another crew member or ground personnel. The personnel to whom this task is delegated shall confirm to the Commander that passengers /cargo / baggage are securely and properly loaded.

08.01.01 Passenger Transport

Passengers may only be carried when they are properly seated and their shoulder and lap safety belts are fastened. Where needed a crew member or ground handling personnel shall assist passengers.

In scheduled commercial air taxi flight :

- Only hand baggage that can be adequately and securely stowed is taken into the passenger compartment,

But in offshore flight :

- No personnel items or objects may be stowed under the passenger seats, e.g. laptop bags. All baggage shall be loaded in the baggage department.

08.01.02 CARRIAGE OF CARGO IN THE PASSENGER COMPARTMENT

The following should be observed before carrying cargo in the passenger compartment, for helicopters:

- the mass of cargo should **not exceed the structural loading** limits of the floor or seats;
- the number/type of restraint devices and their attachment points should be capable of restraining the cargo in accordance with applicable Certification Specifications; and
- the location of the cargo should be such that, **in the event of an emergency evacuation**, it will **not hinder egress nor impair the crew's view**.

08.01.03 Cargo Transport

All **baggage and cargo** on board that might cause injury or damage, or obstruct aisles and exits if displaced, is **stowed** so as to prevent movement.

08.01.04 STOWAGE PROCEDURES

Hand baggage and cargo are adequately and securely stowed should take account of the following:

- each item carried in a cabin should be stowed only in a location that is capable of restraining it;
- **weight limitations** placarded on or adjacent to stowages should **not be exceeded**;
- under seat stowages should not be used unless the seat is equipped with a restraint bar and the baggage is of such size that it may adequately be restrained by this equipment;
- baggage and cargo placed in lockers should not be of such size that they prevent latched doors from being closed securely;
- baggage and cargo should not be placed where it can impede **access to emergency equipment**; and
- checks should be made before take-off, before landing and whenever the 'fasten seat belts' signs are illuminated or it is otherwise so ordered to ensure that baggage is stowed where it **cannot impede evacuation** from the aircraft or **cause injury by falling** (or other movement), as may be appropriate to the phase of flight.

(08.02)- Dangerous Goods (DGR) Transport by Air

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

SPA.DG.100 / CAT.POL.MAB.100

KAAN AIR **has not approved** on the transport dangerous goods with helicopters which approval is taken from the Turkish DGCA.

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09.01-The CDL(s), if provided by the manufacturer, taking account of the aircraft types and variants operated including procedures to be followed when an aircraft is being dispatched under the terms of its CDL

09-CONFIGURATION DEVIATION LIST (CDL)

AMC3 ORO.MLR.100

(09.01)- The CDL(s), if provided by the manufacturer, taking account of the aircraft types and variants operated including procedures to be followed when an aircraft is being dispatched under the terms of its CDL

Revizyon No: 7 Revizyon Tarihi: 21.06.2020

AMC3 ORO.MLR.100

There is no CDL currently; in force for the Leonardo Helicopters AW139.

The fleet aircraft specification and differences list is available at Appendix B.AW139.09.01 Aircraft Specification and Differences List (AW139 Types).

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10-MINIMUM EQUIPMENT LIST (MEL)

ORO.MLR.105

(10.01)- MEL for each aircraft type or variant operated and the type(s)/area(s) of operation

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

ORO.MLR.105 / Regulation (EC) No. 216/2008 Annex IV

The Minimum Equipment List is separately approved by the TR DGCA and kept in the folder MEL of the Flight Operations Department.

Additionally, a digital version is available to all Crew / Staff via the intranet.

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11-SURVIVAL AND EMERGENCY EQUIPMENT INCLUDING OXYGEN

CAT.IDE.H.100

(11.01)- List of Survival Equipment to be carried for the routes to be flown and the procedures for checking the serviceability of this equipment prior to take-off, Instructions regarding the location, accessibility and use of survival and emergency equipment and its associated Checklist(s)

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

CAT.IDE.H.100

- Survival Suit (Crew, Passenger)
- Lifevests (Crew, Passenger)
- Emergency Breathing Apparatus
- Distress Signalling Kit
- Signalling Mirror
- Belt Cutter

(11.02)- Items for Communication to the RCC - RESCUE COORDINATION CENTRE, The information, compiled in a list, should include, as applicable, the number, colour and type of life rafts and pyrotechnics, details of emergency medical supplies, e.g. first-aid kits, emergency medical kits, water supplies and the type and frequencies of Emergency Portable Radio equipment

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

CAT.IDE.H.330

- Emergency life raft system is defined in 10.08, Pyrotechnics in 10.07,
- HPL-2 Emergency Position-Indicatiıng Radio Beacon in the Sea Air Hansen Protection Suit; tracking transmitters used by offshore oil workers have only transmitted signals on the 121.5 MHz (VHF) emergency wave band that only rescue helicopters and rescue boats could pick up.

(11.03)- First Aid Kit

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

CAT.IDE.H.220

(a) KAAN AIR helicopters shall be equipped with at least one first-aid kit.
(b) First-aid kits shall be:
(1) readily accessible for use;
(2) kept up to date.

To be kept up to date, first-aid kits should be:
(a) inspected periodically to confirm, to the extent possible, that contents are maintained in the condition necessary for their intended use;
(b) replenished **once a year**, in accordance with instructions contained on their labels, or as circumstances warrant; and
(c) replenished after use-in-flight **at the first opportunity** where replacement items are available.

The **AW139** is equipped with 2 first aid kits. One is located in the center console of the cockpit and other in the cabin row 1 between Seat F and G

(11.04)- Emergency Lighting and Marking

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

CAT.IDE.H.275

The Emergency lights system includes the following:
— Two battery packs
— Two emergency Dome lights installed in cabin
— Two external emergency lights installed in left and right sponson.

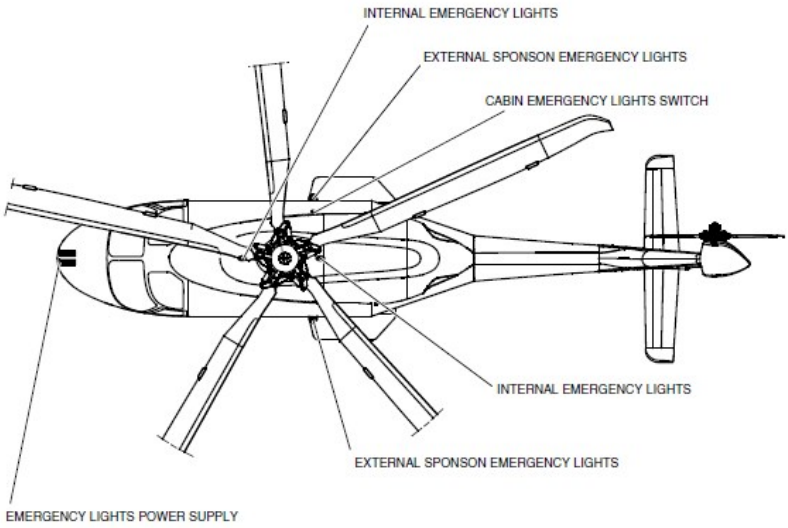
The Internal and External Emergency lights are supplied by two rechargeable battery power installed in the Nose bay.

The rechargeable battery power consumption is 28 VDC input voltage, and 6.1 VDC output voltage.

The two Internal Emergency lights are installed in the cabin ceiling to provide general lighting in the passenger cabin. The two External Emergency lights are provided to illuminate the ground surface at the emergency exits.

All the Internal and External Emergency lights are controlled from a main switch installed on the Light Control Panel and secondary switch installed in the cabin.

Emergency Lights for AW 139



(11.05)- Emergency Locator Transmitter (ELT)

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

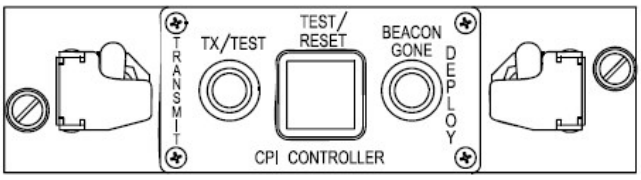
CAT.IDE.H.280

The Crash Position Indicator (CPI) system is a primary radio location aid to alert Search and Rescue and assist location in the event of an aircraft distress condition.

The Emergency Locator Transmitter (ELT), mounted on the left hand side of the tail cone, consists of a locator beacon containing the transmitter and antenna. The beacon, which can be manually or automatically activated, is deployed from the aircraft in the event of a crash situation, providing full emergency frequency operation at 121.5 MHz and 406.025 MHz.

The CPI system also comprises of a Beacon Release Unit, System Interface Unit, Cockpit Control Panel (mounted in the interseat console, Figure 1), water activated switch and an Aircraft Identification Device.

The ELT automatically activates during a crash or aircraft ditching and transmits the standard swept tone on 121.5 MHz until the battery power is exhausted, which will typically be 48hrs. The 406.025 MHz transmitter sends an encoded digital message of aircraft position, as received from the GPS/FMS aircraft system via ARINC, and will operate for 24hrs.



(11.06)- Flight Over Water

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

CAT.IDE.H.300 / CAT.IDE.H.315 / CAT.IDE.H.320 / CAT.IDE.H.145 / CAT.IDE.H.275 / CAT.IDE.H.290 / CAT.IDE.H.295 / AMC1 CAT.IDE.H.300(b)(3) & CAT.IDE.H.305(b) / CAT.IDE.H.305 / AMC1 CAT.IDE.H.305 / AMC1 CAT.IDE.H.320(b) / SPA.HOFO.165 / AMC1 SPA.HOFO.165(c) / AMC1 SPA.HOFO.165(h) / AMC1 SPA.HOFO.165(i) / GM1 SPA.HOFO.165(h)

All Air-Ops regulation requirements about equipment for flight over water and offshore flight are listed below:

CAT.IDE.H.145 Radio altimeters

(a) Helicopters on flight over water shall be equipped with a radio altimeter capable of emitting an audio warning below a pre-set height and a visual warning at a height selectable by the pilot, when operating:

(1) out of sight of the land; (2) in a visibility of less than 1 500 m; (3) at night; or (4) at a distance from land corresponding to more than three minutes at normal cruising speed.

CAT.IDE.H.275 Emergency lighting and marking

(a) Helicopters shall be equipped with emergency exit markings visible in daylight or in the dark when operated:

(1) in performance class 1 or 2 on a flight over water at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed;

(2) in performance class 3 on a flight over water at a distance corresponding to more than three minutes flying time at normal cruising speed.

CAT.IDE.H.290 Life-jackets

(a) Helicopters shall be equipped with a life-jacket for each person on board or equivalent floatation device for each person on board younger than 24 months, stowed in a position that is readily accessible from the seat or berth of the person for whose use it is provided, when operated in:

(1) performance class 1 or 2 on a flight over water at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed;

(2) performance class 3 on a flight over water beyond autorotational distance from land;

(3) performance class 2 or 3 when taking off or landing at an aerodrome or operating site where the take-off or approach path is over water.

(b) Each life-jacket or equivalent individual flotation device shall be equipped with a means of electric illumination for the purpose of facilitating the location of persons.

CAT.IDE.H.295 Crew survival suits

Each crew member shall wear a survival suit when operating in performance class 3 on a flight over water beyond autorotational distance or safe forced landing distance from land, when the weather report or forecasts available to the commander indicate that the sea temperature will be less than plus 10 °C during the flight.

CAT.IDE.H.300 Life-rafts, survival ELTs and survival equipment on extended overwater flights

Helicopters operated:

(a) in performance class 1 or 2 on a flight over water at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed;

(b) in performance class 3 on a flight over water at a distance corresponding to more than three minutes flying time at normal cruising speed, shall be equipped with:

(1) in the case of a helicopter carrying less than 12 persons, at least one life-raft with a rated capacity of not less than the maximum number of persons on board, stowed so as to facilitate its ready use in an emergency;

(2) in the case of a helicopter carrying more than 11 persons, at least two life-rafts, stowed so as to facilitate their ready use in an emergency, sufficient together to accommodate all persons capable of being carried on board and, if one is lost, the remaining life-raft(s) having, the overload capacity sufficient to accommodate all persons on the helicopter;

(3) at least one survival ELT (ELT(S)) for each required life-raft; and

(4) life-saving equipment, including means of sustaining life, as appropriate to the flight to be undertaken.

AMC1 CAT.IDE.H.300(b)(3) & CAT.IDE.H.305(b) flight over water & Survival equipment

SURVIVAL ELT

An ELT(AP) may be used to replace one required ELT(S) provided that it meets the ELT(S) requirements. A water-activated ELT(S) is not an ELT(AP).

CAT.IDE.H.305 Survival equipment

Helicopters operated over areas in which search and rescue would be especially difficult shall be equipped with:

(a) signalling equipment to make distress signals;

(b) at least one ELT(S); and
(c) additional survival equipment for the route to be flown taking account of the number of persons on board.

AMC1 CAT.IDE.H.305 Survival equipment
ADDITIONAL SURVIVAL EQUIPMENT
(a) The following additional survival equipment should be carried when required:
(1) 500 ml of water for each 4, or fraction of 4, persons on board;
(2) one knife;
(3) first-aid equipment; and
(4) one set of air/ground codes.
(b) If any item of equipment contained in the above list is already carried on board the helicopter in accordance with another requirement, there is no need for this to be duplicated.

CAT.IDE.H.320 All helicopters on flight over water — ditching
(a) Helicopters shall be designed for landing on water or certified for ditching in accordance with the relevant airworthiness code when operated in performance class 1 or 2 on a flight over water in a hostile environment at a distance from land corresponding to more than 10 minutes flying time at normal cruise speed.
(b) Helicopters shall be designed for landing on water or certified for ditching in accordance the relevant airworthiness code or fitted with emergency flotation equipment when operated in:
(1) performance class 1 or 2 on a flight over water in a non-hostile environment at a distance from land corresponding to more than 10 minutes flying time at normal cruise speed;
(2) performance class 2, when taking off or landing over water, except in the case of helicopter emergency medical services (HEMS) operations, where for the purpose of minimising exposure, the landing or take-off at a HEMS operating site located in a congested environment is conducted over water;
(3) performance class 3 on a flight over water beyond safe forced landing distance from land.

AMC1 CAT.IDE.H.320(b) All helicopters on flight over water — ditching
GENERAL
The same considerations of AMC1 SPA.HOFO.165(d) (INSTALLATION OF THE LIFE RAFT) should apply in respect of emergency flotation equipment.

SPA.HOFO.165 Additional procedures and equipment for operations in a hostile environment
(a) *Life jackets*
Approved life jackets shall be worn at all times by all persons on board unless integrated survival suits that meet the combined requirement of the survival suit and life jacket are worn.
(b) *Survival suits*
All passengers on board shall wear an approved survival suit:
(1) when the weather report or forecasts available to the commander/pilot-in-command indicate that the sea temperature will be less than plus 10 °C during the flight; or
(2) when the estimated rescue time exceeds the calculated survival time; or
(3) when the flight is planned to be conducted at night.
(c) *Emergency breathing system*
All persons on board shall carry and be instructed in the use of emergency breathing systems.
(d) *Life rafts*
(1) All life rafts carried shall be installed so as to be usable in the sea conditions in which the helicopter's ditching, flotation, and trim characteristics were evaluated for certification.
(2) All life rafts carried shall be installed so as to facilitate their ready use in an emergency.
(3) The number of life rafts installed:
(i) in the case of a helicopter carrying less than 12 persons, at least one life raft with a rated capacity of not less than the maximum number of persons on board; or
(ii) in the case of a helicopter carrying more than 11 persons, at least two life rafts, sufficient together to accommodate all persons capable of being carried on board and, if one is lost, the remaining life raft(s) having the overload capacity sufficient to accommodate all persons on the helicopter.
(4) Each life raft shall contain at least one survival emergency locator transmitter (ELT(S)); and
(5) Each life raft shall contain life-saving equipment, including means of sustaining life, as appropriate to the flight to be undertaken.
(e) *Emergency cabin lighting*
The helicopter shall be equipped with an emergency lighting system with an independent power supply to provide a source of general cabin illumination to facilitate the evacuation of the helicopter.
(f) *Automatically deployable emergency locator transmitter (ELT(AD))*
The helicopter shall be equipped with an ELT(AD) that is capable of transmitting simultaneously on 121,5 MHz and 406 MHz.
(g) *Securing of non-jettisonable doors*

Non-jettisonable doors that are designated as ditching emergency exits shall have a means of securing them in the open position so that they do not interfere with the occupants' egress in all sea conditions up to the maximum sea conditions required to be evaluated for ditching and flotation.

(h) *Emergency exits and escape hatches*

All emergency exits, including crew emergency exits, and any door, window or other opening suitable to be used for the purpose of underwater escape shall be equipped so as to be operable in an emergency.

(i) Notwithstanding (a), (b) and (c) above the operator may, based on a risk assessment, allow passengers, medically incapacitated at an offshore location, to partly wear or not wear life jackets, survival suits or emergency breathing systems on return flights or flights between offshore locations.

AMC1 SPA.HOFO.165(c) Additional procedures and equipment for operations in hostile environment

EMERGENCY BREATHING SYSTEM (EBS)

The EBS of SPA.HOFO.165(c) should be an EBS system capable of rapid underwater deployment.

GM1 SPA.HOFO.165(h) Additional procedures and equipment for operations in a hostile environment

SEAT ALLOCATION

The identification and seating of the larger passengers might be achieved through the use of patterned and/or colour-coded armbands and matching seat headrests.

AMC1 SPA.HOFO.165(i) Additional procedures and equipment for operations in a hostile environment

MEDICALLY INCAPACITATED PASSENGER

(a) A 'Medically incapacitated passenger' means a person who is **unable to wear the required survival equipment**, including life jackets, survival suits and emergency breathing systems (EBSs), as **determined by a medical professional**. The medical professional's determination should be made available to the pilot-in-command/commander prior to arrival at the offshore installation.

(b) The operator should establish procedures for the cases where the pilot-in-command/commander may accept a medically incapacitated passenger not wearing or partially wearing survival equipment. To ensure proportionate **mitigation of the risks** associated with an evacuation, the procedures should be based on, but not be limited to, the severity of the incapacitation, sea and air temperature, sea state, and number of passengers on board.

In addition, the operator should establish the following procedures:

(1) under which circumstances one or more dedicated persons are required to assist a medically incapacitated passenger during a possible emergency evacuation, and the skills and qualifications required;

(2) seat allocation for the medically incapacitated passenger and possible assistants in the helicopter types used to ensure optimum use of the emergency exits; and

(3) evacuation procedures related to whether or not the dedicated persons as described in (1) above are present.

(11.07)- Survival Equipment

Revizyon No: 6 Revizyon Tarihi: 29.02.2020

CAT.IDE.H.305 / CAT.IDE.H.295

- Survival Suit (Crew, Passenger)

- Lifevests (Crew, Passenger)

- Emergency Breathing Apparatus

STASS
(Short Term Air Supply System)
Apeks / Aqua Lung MK

Emergency breathing apparatus intended to give the crew a short-term air supply in the event of an emergency. The air supply is sufficient for 4 minutes (by normal breathing). The system is attached to every crew member lifejacket.

- Distress Signalling Kit

Personal Signal Launcher COMET

The personal signal launcher consists of 9 red signalling cartridges (19 caliber) and a firing device. The kit is integrated in the lifejackets of the crew.

- Signalling Mirror

- Belt Cutter

- Passenger Headset - PELTOR

(11.08)- Procedures to ensure that before taxiing, take-off and landing and when safe and practicable to do so, all means of assistance for emergency evacuation that deploy automatically are armed

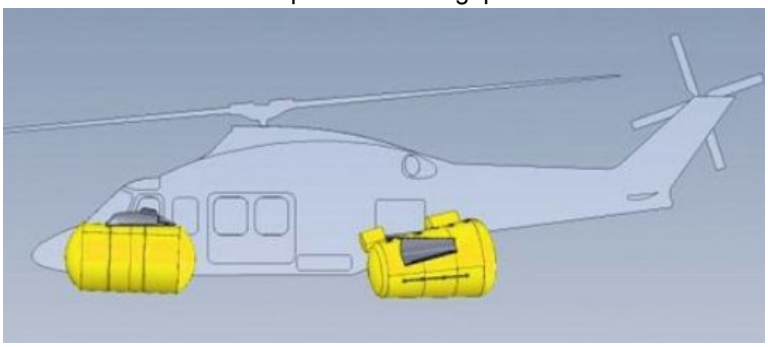
Revizyon No: 4 Revizyon Tarihi: 23.08.2018

CAT.IDE.H.300

Description of the Emergency and Safety Equipment of the Helicopter

Emergency Floatation System

The system comprises of 4 flotation bags, 2 mounted on the lower nose section (left and right hand sides) and two mounted on the lower aft central section (left and right hand side). The flotation bags are automatically deployed on ditching by water sensors (2 of the four sensors must be activated for flotation inflation) or by manual operation of the guarded FLOAT pushbutton on either the Pilot or Copilot collective grip.



Emergency Life Raft System

2 life rafts mounted outside the helicopter on the upper part of the left and right sponson. The life raft inflation is activated manually, and independantly, for left or right life raft installation. Two modes of manual deployment are available, one via a remote handle mounted on the Pilot/ Copilot forward door frame and the other by a handle mounted externally to the aircraft and directly on the life raft container, under a flap, which is clearly marked. Capacity is 11 man (17 man overload).

ADELT (Automatic Deployable ELT)

The ADELT device is an ELT which transmits the aircraft's last GPS position on 121.5 MHz and 406.025 MHz automatically. The device is managed by the pilots via a control panel in the cockpit, or automatically activated by crash sensors. It is also activated automatically in the event of ditching by means of water sensors, thus transmitting the aircraft's last recorded GPS position even if the aircraft sinks.

HEELS (Helicopter Emergency Egress Lighting System)

The HEEL system consist of guide lighting to assist occupants locate emergency exists in the event of a ditching followed by an inversion or canting of the helicopter.

TABLE OF CONTENTS

12-EMERGENCY EVACUATION PROCEDURES

AMC3 ORO.MLR.100

(12.01)- Instructions for preparation for Emergency Evacuation including crew coordination and emergency station assignment

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC3 ORO.MLR.100

After landing, the captain gives the order to evacuate the helicopter. If the captain is not able to do so, the co-pilot must give the order.

The passengers and the crew leave the helicopter using the assigned emergency exits (if possible). After evacuation, the crew checks if all passengers are present and initiates further steps (mayday call, signals, etc.)

Passengers must be briefed on emergency procedures before each flight. This briefing must include how to use the emergency exits. In the helicopter, each passenger must be able to see where the emergency exits are located and which exit he or she must use in the case of emergency. In case of emergency, the captain must inform the passengers thereof (provided time allows him or her to do so)

(12.02)- Emergency Evacuation procedures (Duties of all members of the crew for the rapid evacuation and handling of the passengers in the event of a forced landing, ditching or other emergency)

Revizyon No: 4 Revizyon Tarihi: 23.08.2018

AMC3 ORO.MLR.100

11.02.01 **Landing as Soon as Practicable (example: engine failure)**

The captain informs the passengers:
"Ladies and gentlemen, due to a technical malfunction we will not be able to continue the flight to our destination, but will be re-routing to the nearest airfield"

PM informs ATC of the emergency situation (urgency call PAN-PAN)

11.02.02 **Landing as Soon as Possible (example: electrical fire)**

The captain informs the passengers:
"Ladies and gentlemen, we have a technical problem and we must land as quickly as possible. Please fasten your seat belts and assume the brace position"

PM informs ATC of the emergency situation (distress call MAYDAY)

11.02.03 **Immediate Landing (example: tail rotor failure)**

The captain informs the passengers:
"Emergency, fasten your seat belts and assume BRACE position"

PM informs ATC of the emergency situation (distress call MAYDAY)
The captain informs the passengers before touching down

- For landings on land: "BRACE, BRACE, BRACE"
- For landings on water: "DITCHING, DITCHING, DITCHING"

Pre Flight Check

The following procedure outlines the pilot walk around and interior checks (Figure 2-1).

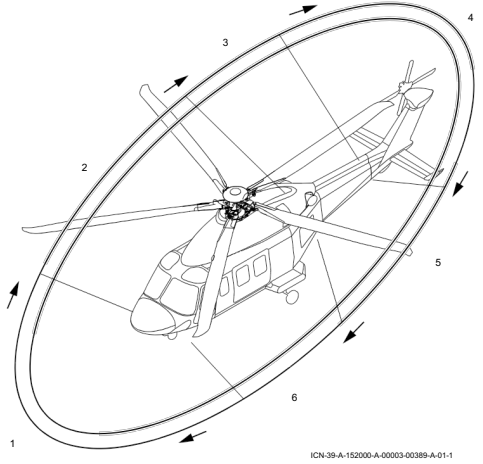


Figure 2-1 Pre-flight Check Sequence

AREA N°1 : Helicopter nose
AREA N°2 : Fuselage - RH side
AREA N°3 : Tail boom - RH side
AREA N°4 : Fin, intermediate/tail gearbox, tail rotor
AREA N°5 : Tail boom LH side
AREA N°6 : Fuselage - LH side
AREA N°7 : Cabin and Cockpit interior

CHECKS

- FUEL DRAIN CHECK — Carry out, before the first flight of day
- Critical & Safety Items Incl. Life Vests — Check conditions and Due dates

1. Main and tail rotor tie downs (if present) — Removed.

AREA N°1 (Helicopter Nose)

2. Nose exterior — Condition.
3. Pitot-Static Probe (Left side) — Cover removed, condition and un-obstructed.
4. Left side brake lines in brake pedal area (looking through bottom transparent panel) — Condition.
5. TCAS Antenna (Lower) — Condition
6. Nose landing gear — Condition, shock strut extension, leaks, tire pressure.
7. Ventilation air intakes (in landing gear bay) — Un-obstructed.
8. Nose compartment access door — Latched and Secure.
9. Pitot-Static Probe (Right side) — Cover removed, condition and obstructions.
10. TCAS Antenna (Upper) ……— Condition.
11. Right side brake lines in brake pedal area (looking through bottom transparent panel) — Condition.
12. Left and right nose flotation covers — Condition of bag covers and attachment bolts present

AREA N°2 (Fuselage - Right Hand Side)

13. Windshield and roof transparent panel	— Condition, cleanliness.
14. Windscreen wiper ➡	— Condition.
15. Fuselage exterior	— Condition.
16. Pilot cockpit door	— Condition, cleanliness, window secure. **Check window for presence of cracks.**
17. Passenger cabin door	— Condition, cleanliness, secure.
18. Right side emergency exits ➡	— Verify secure.
19. Main landing gear	— Condition, shock strut extension, leaks, tire pressure.
20. Drains and vent lines	➡ — Free of obstructions.
21. Engine bay door	— Open using the sponson Step On platform to aid un-latching and opening of bay door.
22. Engine oil level	— Confirm within limits.
23. Engine oil filter	— Confirm red 'pop out' oil filter bypass indicator engaged.
24. Engine bay door	— Close and secure latches using sponson Step On platform to aid closing and latching of bay door.
25. Fuel tank sump area (Right side)	— Confirm no leaks.
26. Baggage compartment, tie down/net	— Condition, cargo (if on board) correctly secure.

27. Baggage door	— Secure. If Baggage door extension kit installed, (P/N 4G5230F00111), confirm key on CLOSED position.
28. Engine area	— Check for fuel and/or oil leaks.
29. Cowling and fairings ➡	— Condition and latched.
30. Air intakes ➡	— Clear and unobstructed.
31. Main rotor components and blades	— General condition.
32. Right hand sponson life raft — cover flap (if fitted)	— Open flap and verify gas bottle pressure is within limits for ambient conditions. (Inflation diagram can be found on underside of flap).
33. Right hand sponson life raft — cover (if fitted)	— Condition and secure.
34. Right hand flotation cover flap	— Open flap and verify gas bottle pressure is within limits for ambient conditions. • For pressure gauge installations the inflation diagram can be found on underside of flap. • For thermos manometer installation confirm needle in green arc.
35. Right hand flotation Cover	— Condition of cover and attachment bolts present

36. Main rotor damper indicators	— Position.
37. Engine air intake screen ➡	— Cover removed, free of damage and obstruction.
38. Engine cowling	— Secure.
39. Gravity fuel filler cap	— Secure.
40. Engine exhaust ➡	— Cover removed, condition.
41. Fire Bottle discharge indicator	— Green.

AREA N°3 (Tail Boom - Right Hand Side)

42. Tail boom exterior	— Condition.
43. Tail rotor drive shaft cover	— Secure.
44. Antenna (1)➡	— Condition.
45. Stabilizer	— Condition and secure.
46. Navigation light➡	— Condition.

AREA N°4 (Fin, Intermediate and Tail Gearbox, Tail Rotor)

47. Satcom antenna (1)	— Condition.
48. Tail fin➡	— Condition.
	— Check for leaks.
49. Intermediate and tail rotor gearbox	— Condition.
50. Tail navigation and anti-collision lights	
51. Tail rotor hub and blades	— Condition, cleanliness.
52. Tail rotor pitch change mechanism ➡	— Condition.

AREA N°5 (Tail Boom Left Hand Side)

53. Tail boom exterior	— Condition.
54. Stabilizer	— Condition and secure.
55. Navigation light ➡	— Condition.
56. Antenna (1) ➡	— Condition.
57. Tail rotor drive shaft cover	— Secure.

AREA N°6 (Fuselage Left Hand Side)

58. Fuselage exterior	— Condition.
59. Engine exhaust	— Cover removed, condition.
60. Fire Bottle discharge indicator	— Green.
61. Baggage compartment, tie down/net	— Condition, cargo (if on board) correctly secure.
62. Baggage door	— Secure. If Baggage door extension kit installed, (P/N 4G5230F00111), confirm key on CLOSED position.
63. Engine cowling	— Open using the sponson Step On platform to aid un-latching and opening of bay door.
64. Engine oil level	— Confirm within limits.
65. Engine oil filter	— Confirm red 'pop out' oil filter bypass indicator engaged.
66. Engine cowling	— Close and secure latches using sponson Step On platform to aid closing and latching of bay door.
67. Engine area ➡	— Check for fuel and/or oil leaks.

68. Engine air intake screen	➡	— Cover removed, clear of damage and obstructions.
69. Engine cowling		— Secure.
70. Air intakes	➡	— Clear and unobstructed.
71. Main rotor components and blades		— General condition.
72. Left side emergency exits	➡	— Confirm secure.
73. Drains and vent lines	➡	— Free of obstructions.
74. Fuel tank sump area (Left side)		— Confirm no leaks.
75. Main landing gear		— Condition, shock strut extension, leaks, tire pressure.
76. Passenger cabin door		— Condition, cleanliness, secure.
77. Cowling and fairings	➡	— Condition.
78. Co-pilot cockpit door		— Condition, cleanliness, window secure. **Check window for presence of cracks.**
79. Windshield and roof transparent panel		— Condition and cleanliness.
80. Windscreen wiper	➡	— Condition.
81. Left hand flotation cover flap		— Open flap and verify gas bottle pressure is within limits for ambient conditions. • For pressure gauge installations the inflation diagram can be found on underside of flap. • For thermos manometer installation confirm needle in green arc.

82. Left hand flotation cover	— Condition of cover and attachment bolts present
83. Left hand sponson life raft cover flap (if fitted)	— Open flap and verify gas bottle pressure is within limits for ambient conditions. (Inflation diagram can be found on underside of flap).
84. Left hand sponson life raft cover (if fitted)	— Condition and secure.

AREA N°7 (Cabin and Cockpit Interior)

85. Passenger Emergency exits — Verify secure.
86. Cabin interior — Equipment and cargo secure.
87. First Aid Kit ➡ — On board.
88. Cabin fire extinguisher ➡ — Secure, charge.
89. Satcom equipment — Present and condition.

Note

For complete details of Satellite Communication System usage refer to appropriate Operators Guide, latest issue.

90. Passenger doors — Closed and secure, confirm levers fully down in locked position.
91. Pilot and Copilot safety belt and inertia reel. — Condition.
92. Pilot and Copilot seat — Secure.
93. Pilot and Copilot flight controls ➡ — Condition and secure.
94. Lower and lateral transparent panels — Integrity, cleanliness and no signs of brake fluid.
95. Pilot and Copilot door — Secure.
96. Instruments, panels and circuit breakers — Condition and legibility

POST SHUTDOWN CHECKS

Before leaving the aircraft:

— If the helicopter is to be parked for prolonged periods (greater than 1 hour) the wheels should be chocked

— If the helicopter is to be parked on sloping ground the wheels should be chocked as soon as possible

— If the helicopter is to remain outside with an OAT at or below -20° C both Main and Auxiliary batteries should be removed and stored in a heated room.

— If flight was over sea, do the section 71-00-00 "**Recommended Engine Wash Based on Operating Environment**" of AW139 Maintenance Program for;

- Compressor desalination wash
- External wash, if needed
- Performance recovery wash, if needed

KAAN AIR

APPENDIX B - AW139 - 09.01
AIRCRAFT SPECIFICATION AND DIFFERENCES LIST (AW139)

SUPP	NAME OF EQUIPMENT	TC-HKB (Lease)	TC-HZG (Operate)	P/Ns
1	Rotor Brake	X	X	3G6351F00113
2	Forced Ventilation Kit, Heating Kit, Forced Ventilation and Heating Kit, Air Conditioning System	X		3G2121F00111 Forced Ventilation Kit 3G2140F00112 Heating Kit 3G2141F00114 Forced Ventilation and Heating Kit 3G2150F00114 Air Conditioning Kit
9	Ditching Configurations	X	3G9560F00212 AERAZUR Floats	Emergency Flotation and Life Raft System (3G9560F00111) Emergency Flotation System (3G9560F00113/212) Emergency Life Raft System (4G2560F00711/ 00811/ 01011/ 01012) Flotation influation; Two panel types are available 3G9560V00553 and 3G9560V00557. • Life Rafts 4G2560F00711/00811, 11 man (17 man overload) • Life Rafts 4G2560F01011/01012, 9 man (14 man overload)
10	Crash Position Indicator with Deployable E.L.T	X		3G2560F00311 3G2560F00312 3G2560F00313
12	CATEGORY A Operations	X	X	— Service Bulletin P&WC S.B. No. 41020 (Turboshaft Engine Electronic Re-programming/ Replacement Model Application PT6C-67C) — Honeywell Primus EPIC SW MM7030191-004 or later.
15	Auxiliary Fuel Tank	X	X	3G2800F00111
18	Second Radar Altimeter RT300	?	X	3G3440F00111
21	HONEYWELL Weather Radar SERIES	X	X	P/N 3G3441F00112 WX P660 P/N 4G3441F00111 WX P701 P/N 4G3441F00911 RDR-7000 P/N 4G3441F01011 P/N 4G3441F01111
25	Traffic Advisory System KTA 970	X		3G3450F00311
28	EURONAV Digital Map System		X	P/N 4G9310F00111 P/N 4G9310F00511 P/N 4G9310F00711 P/N 4G9310F01011
31	Increased Baggage Compartment Load		X	3G2550F00113
34	4 Axis Enhanced Flight Director (EPIC Phase 4)	?		3G2210F00211
35	Heated Windshield System		X	3G5610F00611
37	Second GPS System	X	X	P/N 4G3450F00611 P/N 4G3450F00612 P/N 4G3450F00613
40	4 Axis Basic Flight Director (EPIC Phase 4)	X		4G2210F00311
50	Increased Gross Weight 6800 kg	X	X	One of the following must be present on the aircraft for operation between 6400 kg and 6800 kg: — Kit Increased Gross Weight 6800 kg P/N 4G0000F00111 — Kit Increased Gross Weight 7000 kg P/N 4G0000F00311 — Kit Enhanced Landing Gear P/N 3G3200F00211
51	Take Off and Landing Altitude Extension (9 Passenger Seat Configuration)	X	X	This configuration permits: — The maximum allowable operating altitude for CAT B Take-Off and Landing to be extended to 19000 ft Hp/Hd — The maximum Take Off and Landing weight to be based on the Hover Ceiling IGE at TOP chart with zero wind — The H-V to be considered as performance information.
58	MAX VIZ Series IR Camera	?		4G9750F00311 4G9750F00312 4G9750F00313
61	Additional Secondary Landing Light	?		P/N 4G3340F01811 or P/N 4G3340F01812
67	4 Axis Enhanced Flight Director (EPIC S/W Phase 5 and later)	?	X	The 4 Axis Enhanced Flight Director requires either EPIC Phase 5, (software release EB7030191-00107) or Phase 6 (software release EB7030191-00108 & 109) or Phase 7 (software release EB7030191-00110/00111/00112/00114/00115/00117/00118) or Phase 8 (software release EB7030191-00113). The system contains all the functions of the 4 Axis Enhanced Flight Director and in addition the improvements of the Phase 5 and later software.
68	EPIC S/W Phase 5 and later Additional Functions	X	X	The following functions are introduced and operational with the installation of EPIC Phase 5 (software release EB7030191-00107) or Phase 6 (software release EB7030191-00108 & 109) or Phase 7 (software release EB7030191- 00110/ 00111/ 00112/ 00114/ 00115). New FMS Functions — SAR Search Patterns (Optional, but included with Supplement 69) — Helicopter Performance pages. New Basic Display Functions — CAS caution 'GEN OVLD' added and generator load display modified. — Aural 'Check Height' and 'Low Speed' alerts. — OAT sensor miscompare indication. — AHRS G/S velocity miscompare indication. — Wind indication. — CAT A symbology indications on PFD's. Optional Functions — Support of SBAS GNSS Receivers.
70	4 AXIS BASIC FLIGHT DIRECTOR (EPIC SOFTWARE PHASE 5 AND LATER)	?	?	The 4 Axis Basic Flight Director system is a simplified version of the 4 Axis Enhanced Flight Director system (Supplement 67) as it does not include Hover Mode (HOV) or TU modes. The system requires Phase 5 (software release EB7030191-00107) or Phase 6 (software release EB7030191-00108 & 109) or Phase 7 (software release EB7030191-00110/00111/00112/00114/00115/00117/00118) or Phase 8 (software release EB7030191-00113).
74	Enhanced LANDING LIGHT Configuration	?	X	4G3360F04411 4G3340F00211 4G3340F02611
79	EPIC SOFTWARE PHASE 7 AND LATER SPECIFIC FUNCTIONS		?	S/W EB7030191 - 00110 S/W EB7030191 - 00111 S/W EB7030191 - 00112 S/W EB7030191 - 00114 S/W EB7030191 - 00115 S/W EB7030191 - 00117 S/W EB7030191 - 00118 S/W EB7030191 - 00113 **GENERAL INFORMATION** The following functions are introduced and operational with the installation of EPIC Phase 7 software EB7030191 - 00110/ 00111/ 00112/ 00114/ 00115/ 00117/ 00118 and EPIC Phase 8 software -EB7030191 - 00113. **New AFCS Functions** — Automatic LNAV engagement at Go-Around. **New EDS Functions** — Expanded Lateral Deviation Scale with EPU winglet and aural alert for RNP AR APCH approaches. — TCAS II Capability (covered by Supplement 82). — EGPWS -30 capability (covered by Supplement 81). — Full time DME display. **New FMS Functions** — Auto-close flight plan implemented, — Compliance with the following Navigation Specification, in accordance with PBN Manual ICAO doc. 9613 Ed. 4th: • RNP 2, • RNP 1, • RNP 0.3 all phases of flight, • RNP APCH approaches (LPV, LNAV/VNAV, LNAV minima), • RNP AR APCH (0.3 NM in final approach segment, 1.0 NM in Missed Approach). Covered by Supplement 80. **New EPIC Functions** — ADS-B Out (compliant with DO-260B). — Optional additional Landing Gear Alert logic for Offshore customers. — New CAS Advisory messages for Enhanced Landing Light Configuration Supplement 74. — Collective servo drive capability incorporated for aircraft maintenance ground use only.
80	RNP OPERATIONS (EPIC PHASE 7 AND LATER)		?	This supplement details the certified capabilities of the AW139, when equipped with Primus EPIC Phase 7 and later, to operate RNP Navigation Specifications listed in following Table 1, in accordance with ICAO 9613 PBN manual Ed. 4th, AMC 20-26, AMC 20-27, AMC 20-28, AC 90-105A, AC 20-138D change 2 and AC 90-101A
81	EGPWS MK XXII-30 Enhanced Ground Proximity Warning System	X	X	-024 (P/N 3G3440F00211) -026 (P/N 3G3440F00211) -030 (P/N 3G3440F00212) -034 (P/N 4G3440F00311) -036 (P/N 4G3440F00411)
82	TCAS II		X	4G3450F00211
85	BATTERIES in Parallel (Improved Engine Starting) KIT	?	X	4G2430F00811
87	HEATING/VENTILATION AND AIR CONDITIONING SYSTEMS (ENVIRO)		X	3G2141A00111 Heating and Forced 3G2141A00112 Ventilation Kit 3G2150F00511 Air Conditioning Kit 3G2150F00512 4G2150F00711 Kit ECS for AGB 4G2150F00611 Dual Zone 4G2150F00911 Kit ECS Dual Zone for AGB
89	Circular Force Active Vibration Control System		X	4G1830F00611/12 4G1830F00711/12 4G1830F00411/12 4G1830F00511/12
90	Weight Extension 7000 kg		X	4G0000F00311