

Offshore Helicopter Recommended Practices



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About

Report 690 - *Offshore Helicopter Recommended Practices (OHRP)* and its component documents provides recommended practices that will assist in the safe, effective, and efficient management of offshore commercial helicopter transport operations.

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Offshore Helicopter Recommended Practices

Revision history

VERSION	DATE	AMENDMENTS
1.0	October 2020	First release

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Scope

Report 690 - *Offshore Helicopter Recommended Practices* (OHRP) and its component documents provide recommended practices that will assist in the safe, effective, and efficient management of offshore commercial helicopter transport operations. The document reflects industry best practices, developed in collaboration between oil and gas companies, aviation industry associations, and helicopter operators. Adopting the Offshore OHRP will provide the framework for effective management of a key material risk to the safety of offshore personnel.

This report provides the basis for use as a contractible standard associated with the management of offshore commercial helicopter transport operations. The document can be referenced for technical specifications during the tendering stage, and then be used in the execution of ongoing operational management.

To drive standardisation and consistency, whilst reducing ambiguity within all contracted operations, it is recommended the OHRP content be adopted by all IOGP Member Companies for their company and contracted operations using offshore helicopter transport.

Introduction

Implementation by Member Companies

It is recognised that the adoption of this document will represent a significant change in approach for some IOGP Member Companies and is likely to require a transition period to implement.

Gap assessment

A **Member Assessment Tool** has been developed to assist IOGP Members and other users of the OHRP to measure gaps against current operating processes and practices. It is expected that IOGP Members will complete the gap assessment within six months of publication of these Recommended Practices and register differences from the OHRP with IOGP through their representatives in the Aviation Subcommittee (ASC) or, if unrepresented in that group, the Safety Committee.

Legacy Practices including use of single-engine helicopters

It is recognised that in a limited number of cases, IOGP Members may not immediately be able to achieve the operating standard within the OHRP due to legacy issues such as smaller offshore helidecks. Where IOGP Members are using single-engine helicopters to service these offshore assets, guidance material has been retained in IOGP Report 590 Aircraft Management Guide. IOGP Members are expected to register these differences from the OHRP using the process described above.

Use in contracts

The content, structure, language and style of the OHRP allows IOGP Members to use the document directly in contracts to specify the technical scope for contracted operations. This can be as an external document that is referenced from the contract agreement, or alternatively, by embedding the OHRP text within agreements with their suppliers.

IOGP Members are expected to implement the OHRP in all new contracts for offshore helicopter passenger transport and at the next contract renewal for existing contracts.

Joint-Industry Safety Collaboration, Sources and Acknowledgement

The development of the OHRP has been a great example of joint-industry safety collaboration in pursuit of managing offshore air transport risks, demonstrating care for our workforce and improving safety performance to achieve the goal of Zero fatalities within the industry. It represents the collective efforts of many years, building on the expertise of a range of industry participants and reflecting existing best practice and recent advances in technology and regulation.

Developed primarily from the basis of IOGP Report 590 - *Aircraft Management Guide* and IOGP Report 410 - *Recommended Practices for Contracted Air Operations*, other source materials include the Flight Safety Foundation's Basic Aviation Risk Standard (BARS) for Offshore Helicopter and Operations Safety Performance Requirements v.4 (BARSOHO) and the Norwegian standard, NOROG 066 – Recommended guidelines for flights to petroleum installations, in addition to ICAO and national aviation regulations, such as EASA and the FAA.

In recent years, the IOGP ASC has collaborated with HeliOffshore, helicopter operators, manufacturers, and other partners on a safety improvement strategy for the offshore helicopter industry. The technical elements of that strategy are represented in the HeliOffshore Safety Performance Model (SPM, Figure 1), which was jointly derived from the work of the Flight Safety Foundation BARS Program. This model has been an important point of reference for the OHRP and is referenced in each relevant section. HeliOffshore Recommended Practice documents are also referred to and provide additional guidance on specific technical areas.

Within the document, the format has adopted the BARSOHO practice for individual elements to be linked to the HeliOffshore SPM, identifying the relevant Accident Events, Accident Prevention Goals (Controls), Accident Survival Goals and Common Enablers as applicable.

The deliberate alignment where practices are shared between the OHRP, HeliOffshore, BARS and other documents, acknowledges the shared contribution and ongoing work toward collectively standardising risk controls and best practice across the industry. Other industry organisations whose contribution and participation are recognised appreciated are:

- Helicopter Safety Advisory Conference (HSAC)
- Oil & Gas UK (OGUK)
- Helicopter manufacturers (Airbus, Bell, Leonardo, Sikorsky)
- OPITO
- Aviation regulatory bodies.

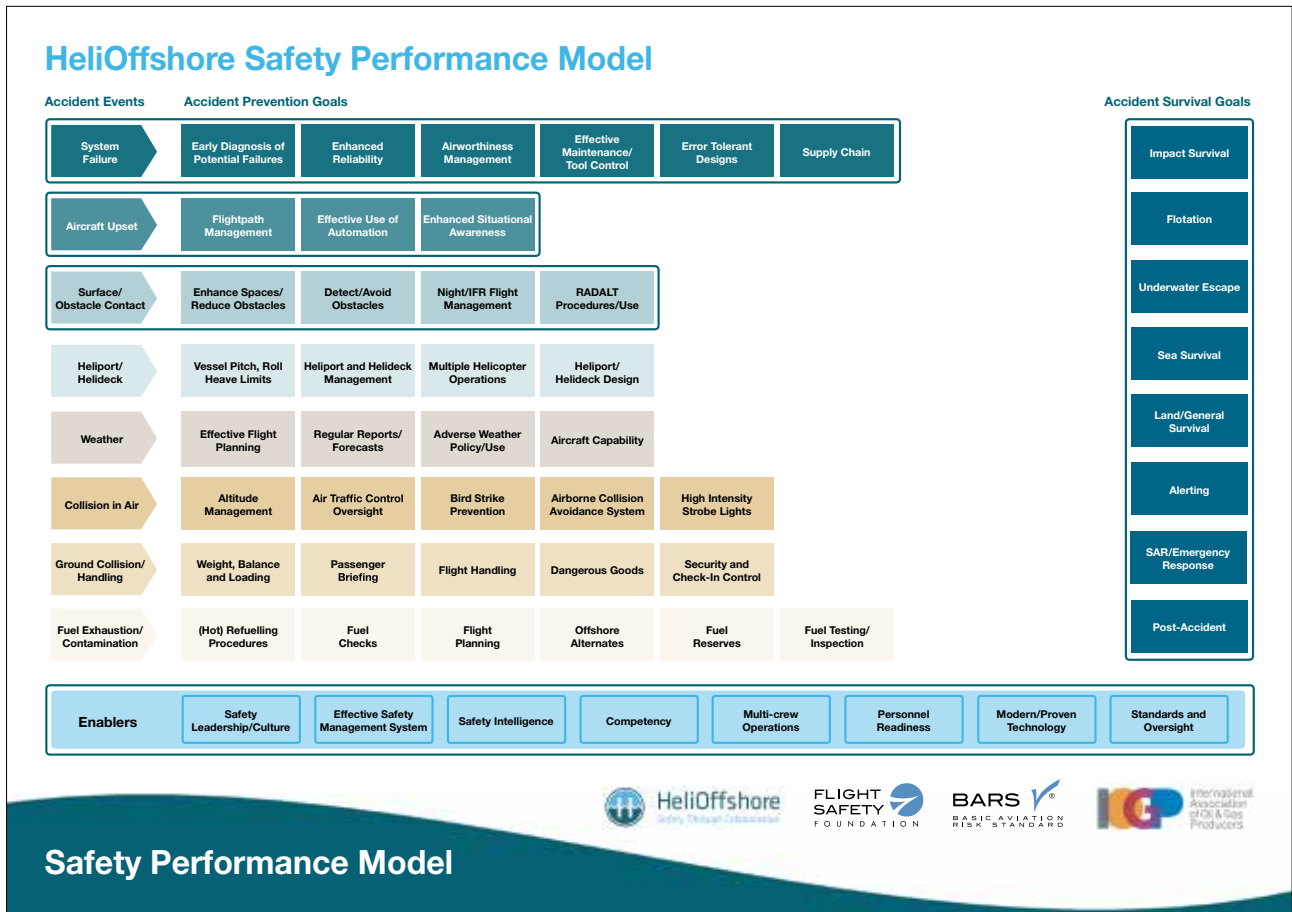


Figure 1: HeliOffshore Safety Performance Model v.4

Limitations

The scope of the OHRP is limited exclusively to offshore helicopter Commercial Air Transport (CAT) operations and replaces those elements in IOGP Report 590 v.2. IOGP Report 410 has been withdrawn upon publication of this Recommended Practice and the legacy material from Report 590 that relates to aviation activities other than those covered in the OHRP will be subject to a future revision of that document.

The OHRP provides supplemental practices to those legislated by National Aviation Authorities (NAA). The national regulations or ICAO requirements are followed when they exceed any of the practices contained within this report.

The recommended practices contained within this report represent the minimum required practices. All users of this document are encouraged, through formal risk assessment, to identify additional controls that may be required to assist managing the risk and localised conditions.

The OHRP is available for use by contractors (including aircraft operators, Aviation Maintenance Organisations (AMO) and subcontractors) in order to meet the expectations of IOGP Members when they are contractually stipulated to adhere to these practices.

Summary of Significant Changes

The OHRP content differs from Report 590 in several areas. Some key differences include:

- The scope limited to offshore Commercial Air Transport (CAT) helicopter operations
- The use of helicopters certificated to detailed FAR29/JAR 29 or CS29 Amendments – for full details of specific amendments see 690-5 - *Helicopter and Equipment*, Section 1 – Certification Standard
- The use of multiengine helicopters only
- The use of two pilots
- The use of IFR-capable helicopters with a 4-axis autopilot
- Simplified practices for an Safety Management Systems (SMS)
- Pilot simulator training every 6 months
- Simplified VFR weather and fuel minima
- Revised stabilised approach criteria
- The inclusion of references to HeliOffshore Helicopter Flight Data Management, (HFDM) Approach Path Management (APM), and Health & Usage Monitoring Systems (HUMS) Recommended Practice (RP) documents
- Added additional entry points for pilot competency-based training programme
- A full cycle of Line Operation Safety Audit (LOSA) every three years
- In-flight data transfer (HUMS, etc.) when available and supported by the Original Equipment Manufacturer (OEM)
- Helicopter Terrain Avoidance Warning Systems (HTAWS) when available and supported by the OEM
- The use of Airborne Collision Avoidance System (ACAS2)
- Cockpit and tail cameras
- The use of Compressed Air Emergency Breathing Systems (CA-EBS)
- The replacement of Sea State by Significant Wave Height (SWH)

OHRP Structure

The recommended practices have been drafted in the format of IOGP Report 577 - *Fabrication Site Construction Safety Recommended Practice – Hazardous Activities*, with text phrased as direct statements that illustrate *Why, What, and How* an accident prevention goal is to be achieved by those organisations providing a service to IOGP Members.

The OHRP is organised into sections covering the main activities associated with the delivery of aviation services and within each section are technical elements. Each element is presented with a Title, Purpose, Expectations, and Recommended Processes and Practices. A 'responsible party' for each element is identified either as 'Company', meaning the entity which engages the services of an offshore helicopter operator, or 'Contractor' which may be the aircraft operator, vessel or rig operator, Aircraft Maintenance Organisation or other subcontracted party (e.g., a provider of ground support services such as passenger check-in and processing).

The OHRP elements are cross referenced to an Accident Event, Enabler, or Accident Survival Goal (Defence) as defined in the HeliOffshore SPM and the relevant principal Accident Prevention Goal (Control) is marked on the SPM event threat line.

Other relevant industry standards and guidance are provided for reference on each page.

The OHRP has been separated into six distinct modules, as follows:

690-0: Introduction

- Scope and Introduction
- Abbreviations
- Definitions

690-1: Safety Management Systems

Recommended practices to ensure:

- Safe operation with all necessary approvals
- An effective system of documented aviation safety management procedures

690-2: Aircraft Operations

Recommended practices describing:

- Aircraft and flight operations
- Pilot experience, qualifications, and training
- Flight procedures

690-3: Support Operations¹

Recommended practices:

- To support offshore helicopter flight operations such as passenger and cargo handling, passenger training, activities around helidecks and refuelling
- Responsibilities for passenger training
- Responsibilities for helideck processes

690-4: Engineering

Recommended practices describing:

- Airworthiness
- Maintenance management
- Quality (Compliance Monitoring) System
- Maintenance Facilities and Stores
- Maintenance personnel and training
- Health & Usage Monitoring Systems (HUMS)

690-5: Helicopters and Equipment²

Recommended practices describing:

- Helicopter minimum certification standards
- Helicopter configuration and minimum fitted equipment for the offshore role, such as emergency exit lighting and push-out windows
- Additional safety equipment and systems such as HUMS, FDM, ACAS and HTAWS

Please note that the numbering in each module is particular to that section, i.e., the numbering of all subsections starts over with each module.

¹ Note that these support activities that may be provided by the Company, Aircraft Operator, or another service provider depending on local arrangements.

² Note that the Member Company is responsible for ensuring that the contract stipulates that the contracted helicopters meet the specifications of 690-5. The Contractor is then be responsible for ensuring that the helicopters and equipment meet the contracted requirements.

Abbreviations

Term	Definition
AAD	Advanced Anomaly Detection
ACAS	Airborne Collision Avoidance System
AD	Airworthiness Directive
ADS-B	Automatic Dependent Surveillance - Broadcast
ADM	Aeronautical Decision Making
AEO	All engines operating
AFCS	Automatic Flight Control System
AFDS	Automatic Float Deployment System
AGL	Above Ground Level
AIS	Automatic Identification System
ALAR	Approach and Landing Accident Reduction
ALARP	As Low As Reasonably Practicable
AMO	Approved Maintenance Organisation
AMP	Approved Maintenance Programme
AOC	Air Operator's Certificate
APM	Approach Path Management
APU	Auxiliary Power Unit
ARA	Airborne Radar Approach
ATC	Air Traffic Control
ATL	Aircraft Technical Log
ATO	Approved Training Organisation
ATPL	Air Transport Pilot Licence
AVAD	Automatic Voice Alerting Device
AWOS	Automated Weather Observation System
BARS	Basic Aviation Risk Standard
BMU	Bearing Monitor Unit
CAA	Civil Aviation Authority
CAMO	Continuing Airworthiness Management Organisation
CAP	Civil Aviation Publication (UK)
CAT	Commercial Air Transport
CBT	Computer Based Training
C of G	(Aircraft) Center of Gravity

Term	Definition
CFIT/W	Controlled Flight into Terrain/Water
CPI	Crash Position Indicator
CPL	Commercial Pilot's Licence
CMT	Critical Maintenance Task
CRM	Crew Resource Management
CRS	Certificate of Release to Service
CS	Certification Standard
CTC	Chief Training Captain
CVFDR	Combined Voice and Flight Data Recorder
CVR	Cockpit Voice Recorder
DAPU	Data Acquisition and Processing Unit
DG	Dangerous Goods
DSV	Diving Support Vessel
EASA	European Aviation Safety Agency
EBS	Emergency Breathing System
EFB	Electronic Flight Bag
EGPWS	Enhanced Ground Proximity Warning System
ELT	Emergency Locator Transmitter
EPRIB	Emergency Position Radio Indicating Beacon
ERP	Emergency Response Plan
ETA	Estimated Time of Arrival
ETSO	European Technical Standard Order
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations (USA)
FCOM	Flight Crew Operating Manual
FDM	Flight Data Monitoring
FDP	Flight Duty Period
FDR	Flight Data Recorder
FFS	Full Flight Simulator
FOD	Foreign Object Debris
FSTD	Flight Simulation Training Device
FOQA	Flight Operations Quality Assurance
FTD	Flight Training Device
FTO	Flight Training Organisation
GPS	Global Positioning System

Term	Definition
HCA	Helideck Certification Agency
HDA	Helideck Assistant
HEEL	Helicopter Emergency Exit Lighting
HEMS	Helicopter Emergency Medical Services
HISL	High Intensity Strobe Light
HLO	Helideck Landing Officer
HRM	Hazard and Risk Management
HSAC	Helicopter Safety Advisory Conference
HUET	Helicopter Underwater Escape Training
HTAWS	Helicopter Terrain Awareness Warning Systems
HUMS	Health and Usage Monitoring System
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rules
IGE	In Ground Effect
IMC	Instrument Meteorological Conditions
IOGP	International Association of Oil and Gas Producers
IR	Instrument Rating
KPI	Key Performance Indicator
LDP	Landing decision point
LOFT	Line Oriented Flight Training
LOS	Limited Obstacle Sector
LOSA	Line Operations Safety Audit
LPC	Licence Proficiency Check
LTC	Line Training Captain
MCC	Multi-Crew Concept
MCF	Maintenance Check Flight
MDS	Minimum Departure Standard
METS	Modular Egress Training Simulator
MEL	Minimum Equipment List
MMEL	Master Minimum Equipment List
MOC	Management of Change
MOP	Maintenance Observation Program
MOPSC	Maximum Operational Seating Capacity
MRB	Maintenance Review Board

Term	Definition
NAA	National Aviation Authority
NEF	Non-Essential Furnishings
OEI	One Engine Inoperative
OEM	Original Equipment Manufacturer
OFS	Obstacle Free Sector (of a helideck)
OGE	Out of Ground Effect
OHRP	Offshore Helicopter Recommended Practices
OIM	Offshore Installation Manager
OPC	Operator Proficiency Check
OPITO	Offshore Petroleum Industry Training Organization
PA	Public Address
PC	Performance Class
PCO	Passenger Control Officer
PED	Portable Electronic Device
PF	Pilot flying
PIC	Pilot-in-Command
PICUS	Pilot-in-Command under supervision
PLB	Personal Locator Beacon
PM	Pilot Monitoring
PNR	Point of No Return
PPE	Personal Protective Equipment
PRH	Pitch, Roll and Heave
QA	Quality Assurance
QC	Quality Control
RFM	Rotorcraft Flight Manual
RHS	Right hand seat
RII	Required Inspection Item
RP	Recommended Practices
RRRF	Rotors Running Refuel
SAR	Search and Rescue
SB	Service Bulletin
SLL	Service Life Limit
SLTC	Senior Line Training Captain
SMS	Safety Management System
SOP	Standard Operating Procedure

Term	Definition
SPI	Safety Performance Indicator
STC	Supplemental Type Certificate
SWH	Significant Wave Height
TAWS	Terrain Awareness Warning System
TBO	Time Between Overhaul
TC	Type Certificate
TCAS	Traffic Collision Avoidance System
TD/PM	Touch Down / Positioning Marking Circle
TEM	Threat and Error Management
TRE	Type Rating Examiner
TRI	Type Rating Instructor
TSO	Technical Standard Order
ULB	Underwater Locator Beacon
UTR	Upper Torso Restraint
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
WDD	Wet Dinghy Drill
XBR	Extra Broad

Definitions

Term	Definition	Sourced from
Accident	<p>An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which:</p> <p>a) A person is fatally or seriously injured as a result of:</p> <ol style="list-style-type: none"> 1) Being in the aircraft, or 2) Direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or 3) Direct exposure to rotor downwash, except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or <p>b) The aircraft sustains damage or structural failure which:</p> <ol style="list-style-type: none"> 1) Adversely affects the structural strength, performance or flight characteristics of the aircraft, and 2) Would normally require major repair or replacement of the affected component 3) Except for engine failure or damage, when the damage is limited to a single engine, (including its cowlings or accessories), to antennas, probes, vanes, tyres, brakes, wheels, fairings, panels, landing gear doors, windcreens, the aircraft skin (such as small dents or puncture holes), or for minor damages to main rotor blades, tail rotor blades, landing gear and those resulting from hail or bird strike (including holes in the radome); or <p>c) The aircraft is missing or is completely inaccessible</p> <p><i>Note: Any ditching or water landing, unless deliberate in an aircraft equipped with floats designed to allow water landings and takeoffs, shall be considered an accident, regardless of any injury or damage that may occur.</i></p>	ICAO AMG 590 B 5.1
Accountable Manager	The individual designated as the person responsible to a Regulatory Authority in respect of the functions carried out by an aircraft operator or aircraft maintenance and repair organisation which are subject to regulation. This person is normally expected to have corporate authority for ensuring that all operations activities can be financed and carried out to the standard required by the Regulator.	
Aircraft Operator	The approved organisation providing a service with aircraft (and includes reference to approved training/maintenance/ continuing airworthiness management organisations, etc. that are either part of the aircraft operator or contracted by the aircraft operator).	BARSOHO
Base Maintenance	Any maintenance outside the scope of line maintenance.	EASA/IOGP 590
Commercial Air Transport Operation	An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.	ICAO
Company	The individual entity using the Offshore Helicopter Operator in support of contracted aviation operations.	BARSOHO
Continuing airworthiness	The set of processes by which an aircraft, engine, propeller or part complies with the applicable airworthiness requirements and remains in a condition for safe operation throughout its operating life	ICAO

Term	Definition	Sourced from
Continuing Airworthiness Management	All of the processes ensuring that, at any time in its life, an aircraft complies with the technical conditions fixed to the issue of the Certificate of Airworthiness and is in a condition for safe operation	ICAO
Contracted Offshore Helicopter Operator ("Contractor")	The approved organisation providing a service with aircraft (and includes reference to approved training/ maintenance/ continuing airworthiness management organisations, etc. that are either part of the aircraft operator or contracted by the aircraft operator).	BARSOHO
Critical Maintenance Tasks (CMTs)	Maintenance tasks that involve the assembly or disturbance of any system that may affect flight path, attitude, or propulsive force, and which, if errors occurred, could result in a failure, malfunction, or defect that would endanger the safe operation of the aircraft. These may be termed Duplicate Inspections by the UK CAA; Independent Inspections by CASA and EASA; Required Inspection Items (RII) by the FAA, Dual Inspection, or Independent Check by Transport Canada	BARSOHO
D value	The largest overall dimension of the helicopter when rotors are turning. This dimension will normally be measured from the most forward position of the main rotor tip path plane to the most rearward position of the tail rotor tip path plane (or the most rearward extension of the fuselage in the case of Fenestron or Notar tails).	CAP 437
Dangerous Goods	Articles or substances which are capable of posing significant risk to health, safety or property, when transported by air.	ICAO
Exposure time	The time period during a PC2 takeoff or landing during which the helicopter is exposed to a forced landing or ditching if an engine fails (see definition of PC2).	ICAO
Extended over water flight	Flight over open water more than 10 minutes flying time at normal cruise speed	EASA
Flight data Monitoring	The proactive and non-punitive use of digital flight data from routine operations to improve aviation safety	EASA
FDM programme	A proactive and non-punitive programme for gathering and analysing data recorded during routine flights to improve aviation safety.	EASA
High Traffic Risk Environment	An area where the potential for conflicting traffic is assessed as being high. This may include: <ul style="list-style-type: none"> • Areas where there are many destinations in the same basin offshore; • Multiple aircraft operators using similar routes; • Operations near military exercise areas or other sources of regular adjacent traffic; • Onshore operations from busy airfields with a mix of helicopter and fixed wing traffic; or • Multiple adjacent onshore heliports. 	BARSOHO
Hostile environment	An environment in which: <ul style="list-style-type: none"> • a safe forced landing cannot be accomplished because the surface and surrounding environment are inadequate; or • the helicopter occupants cannot be adequately protected from the elements; or • search and rescue response/capability cannot be provided consistent with the anticipated exposure; or • there is an unacceptable risk of endangering persons or property on the ground 	ICAO
HTAWS	Helicopter-specific TAWS (HTAWS) is a term used to define systems with classic (RADALT-based) and Forward-Looking Terrain Alerting (FLTA) modes adapted for helicopter flight profiles. Some of the classic modes may be optimised specifically to take account of offshore conditions and profiles.	
Incident	An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation	ICAO AMG590 B 5.2

Term	Definition	Sourced from
Limited Obstacle Sector	The 150° sector within which obstacles may be permitted, provided the height of the obstacles is limited.	CAP 437
Line Maintenance	Any maintenance that is carried out before flight to ensure that the aircraft is fit for the intended flight. It may include: <ul style="list-style-type: none"> a) troubleshooting b) defect rectification c) component replacement with use of external test equipment if required. d) scheduled maintenance and/or checks including visual inspections that will detect obvious unsatisfactory conditions/discrepancies but do not require extensive in-depth inspection. It may also include internal structure, systems and power plant items which are visible through quick opening access panels/doors e) minor repairs and modifications which do not require extensive disassembly and can be accomplished by simple means f) aircraft configuration changes to support different roles. 	EASA/IOGP 590
Long-term contract	Any contract using aircraft assigned solely to the company for a planned duration of greater than six months. Certain additional requirements apply to long-term contracts. Where practical these should be considered for all contracts.	BARSOHO
Maintenance Data	Any applicable requirement, procedure, operational directive or information issued by the authority responsible for the oversight of the aircraft or component; Any applicable airworthiness directive issued by the authority responsible for the oversight of the aircraft or component; Instructions for continuing airworthiness, issued by type certificate holders, supplementary type certificate holders, any other organisation required to publish such data by the regulator and in the case of aircraft or components from third countries the airworthiness data mandated by the authority responsible for the oversight of the aircraft or component; Any applicable standard, such as but not limited to, maintenance standard practices recognised by the Agency as a good standard for maintenance.	EASA
Maintenance Release to Service	The work specified in the work order is carried out in accordance with the applicable rules and, in respect to that work, an appropriately rated Licensed Engineer considers the aircraft/component ready for service.	ICAO
Near miss	A narrowly avoided event having safety implications to all types of (aviation) operations.	AMG590 B 5.3
Non-hostile environment	An environment in which: <ul style="list-style-type: none"> • a safe forced landing can be accomplished because the surface and surrounding environment are adequate • the occupants can be adequately protected from the elements • search and rescue response/capability is provided consistent with anticipated exposure; and • the assessed risk of endangering persons or property on the ground is acceptable 	ICAO
Non-hostile environment, additional considerations	Consideration should be given to: <ul style="list-style-type: none"> • The fact that some environments which may be non-hostile for most of the year may become hostile in locally extreme weather • Cumulative time for individual recovery operations • Occupant survival time in the local water conditions 	BARSOHO definitions
Obstacle free sector	The 210° sector, extending outwards to a distance that will allow for an unobstructed departure path appropriate to the helicopter the helideck is intended to serve, within which no obstacles above helideck level are permitted. For helicopters operated in Performance Class 1 or 2 the horizontal extent of this distance will be compatible with the one-engine inoperative capability of the helicopter type to be used.	CAP 437

Term	Definition	Sourced from
Performance Class 1 (PC1)	In the event of a critical engine failure, performance is available to enable the helicopter to safely continue the flight to an appropriate landing area, unless the failure occurs prior to reaching the take-off decision point (TDP) or after passing the landing decision point (LDP), in which cases the helicopter must be able to land within the rejected take-off or landing area	ICAO
Performance Class 2 (PC2)	In the event of a critical engine failure, performance is available to enable the helicopter to safely continue the flight to an appropriate landing area, except when the failure occurs early during the take-off manoeuvre or late in the landing manoeuvre, in which cases a forced landing may be required.	ICAO
Performance Class 2E (PC2E)	A subset of PC2 which Company or the NAA may require to be used in offshore operations. The intent of PC2E is to provide a reasonable assurance that, in the event of an engine failure at any point during the landing or takeoff, the helicopter will not hit the deck edge and will miss the sea surface by a defined distance. PC2E requires use of defined takeoff and landing profiles, and using Flight Manual data to calculate takeoff and landing weights as a function of atmospheric conditions (altitude, temperature and headwind) and height of the helideck above the sea. In hostile sea areas, the standard deck edge miss is taken as 15 feet and the standard sea miss distance is taken as 35 feet. These distances may be reduced in non-hostile areas at the discretion of the Company. It is important to understand that even when operating at PC2E weights, there may be occasions when the ideal profile cannot be complied with. These may include landings on moving decks, where the pilot needs to hover for a short while to assess deck movement, and operations to decks where there are obstructions (such as derricks, crane A frames or superstructure) in the ideal into-wind approach or departure path. In such cases, the pilot will aim to minimise the exposure time by flying the safest profile he can in the circumstances, but there will still be a short time during which the aircraft will be exposed to an obstacle strike or ditching.	Based on EASA
Performance Class 2DLE (PC2DLE)	A sub-class of PC2 with exposure that allows for calculation of a defined and limited exposure time to ditching (but not to deck edge strike), as a function of the same environmental parameters as PC2E together with aircraft mass, allowing the overall balance of risk to the operation to be assessed.	Based on EASA
Performance Class 3 (PC3)	In the event of an engine failure at any time during the flight, a forced landing will be required for a single-engine helicopter and may be required for a multi-engine helicopter.	ICAO
Pilot in Command	The pilot designated by the operator as being in command and charged with the safe conduct of a flight.	ICAO
Safe forced landing	Unavoidable landing or ditching with a reasonable expectancy of no injuries to persons in the aircraft or on the surface.	ICAO
Safety Management System	A systematic approach to managing safety, including the necessary organisational structures, accountabilities, policies and procedures	ICAO
t value	The maximum allowable take-off mass (MTOM) of the helicopter for which that area is authorised with regard to its structural limitations.	CAP 437
Touchdown/ Positioning Marking Circle	The TD/PM Circle is the aiming point for a normal touchdown (landing) so located that when the pilot's seat is over the marking, the whole of the undercarriage will be within the landing area and all parts of the helicopter will be clear of any obstacles by a safe margin. <i>NOTE: It should be noted that only correct positioning over the TD/PM Circle will ensure proper clearance with respect to physical obstacles and provision of ground effect and provision of adequate passenger access/egress.</i>	CAP 437