International Association of Oil & Gas Producers

REPORT 690

OCTOBER 2020

Offshore Helicopter Recommended Practices

Acknowledgements

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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.

Feedback

IOGP welcomes feedback on our reports: publications@iogp.org

REPORT
690

OCTOBER
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Offshore Helicopter Recommended Practices

Revision history

VERSION	DATE	AMENDMENTS
1.0	October 2020	First release

Contents

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.

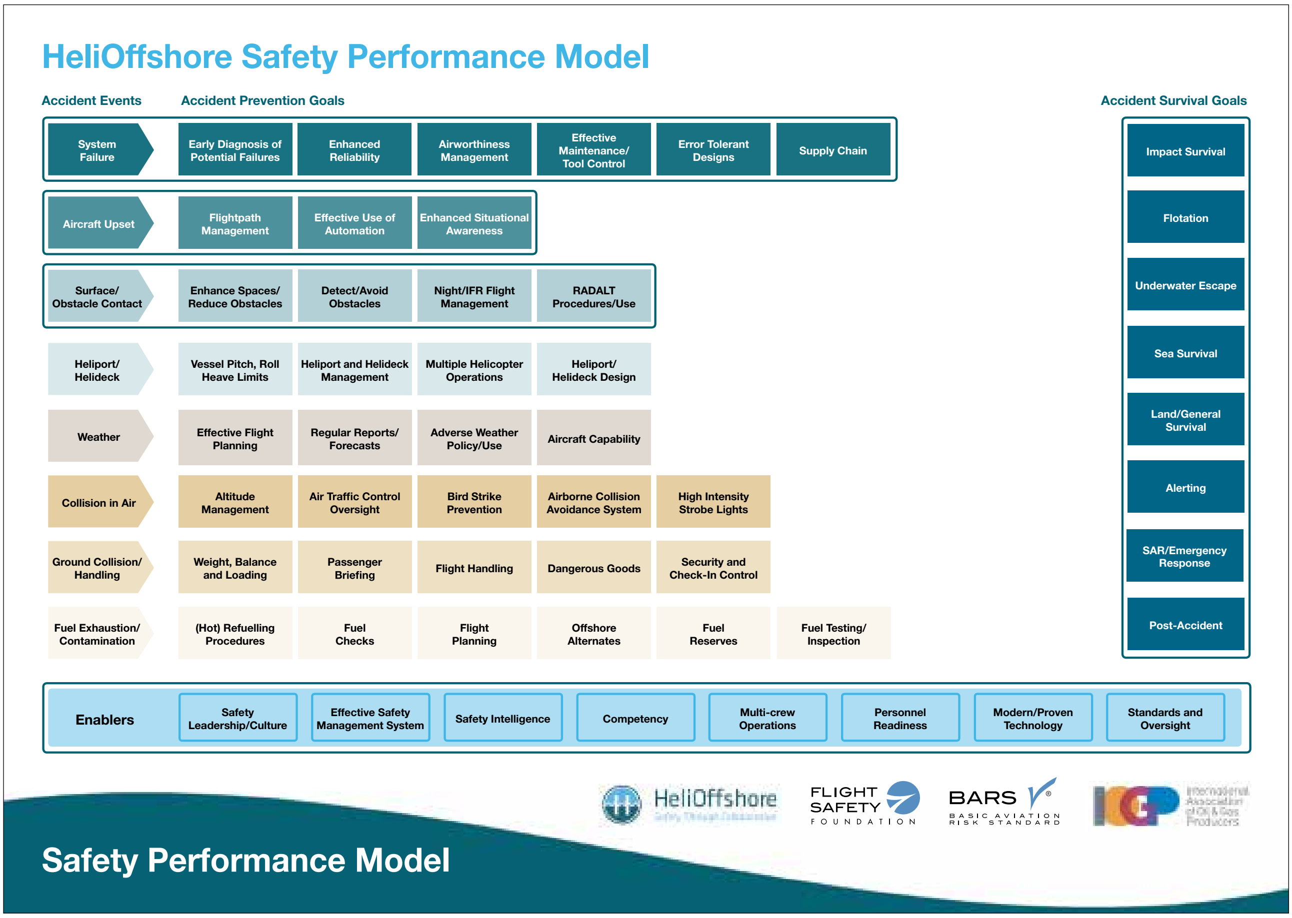


Figure 1: HeliOffshore Safety Performance Model v.4

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 Operations[1]

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 Equipment[2]

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	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: a) A person is fatally or seriously injured as a result of: 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 b) The aircraft sustains damage or structural failure which: 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, windscreens, 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 c) The aircraft is missing or is completely inaccessible *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.*	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: • 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: • 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 150º 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: 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: • 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: • 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 210º 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. *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.*	CAP 437

International Association of Oil & Gas Producers

IOGP REPORT 690-1

Safety Management System

1. Safety Management System - General[1]

1A. Purpose

Ensuring safe operation with all necessary approvals and with an effective system of documented safety management procedures.

1B. Expectations

An effective Safety Management System (SMS) is in place, appropriate to the size and complexity of the organisation and incorporating all elements of 690-1 to manage significant safety risks to ALARP levels.

1C. Processes and practices

1C.1 The SMS is compliant with NAA regulatory requirements and meets the intent of ICAO Annex 19, 2nd Edition July 2016 - Appendix 2 - Framework for an SMS, and ICAO Doc 9859, Safety Management Manual (SMM), 4th Edition, 2018, including in those countries where national regulations for SMS are not in place for the class of operation or activity.

1C.2 The SMS interlinks the all of the elements listed in IOGP Report 690-1 – *Safety Management Systems* to allow safety information to circulate freely and continuous improvements to be made.

Other references

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859 Safety Management Manual (SMM)), 4th Edition, 2018
- IOGP Report 510 – *Operating Management System Framework*
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	**Effective Safety Management System**	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

[1] The term Safety Management System (SMS) has been used for consistency, recognising that some organisations may have system elements contained within a wider integrated Management System (MS).

2. Management Commitment and Leadership

2A. Purpose

Ensuring an organizational culture where the normal behaviour at all levels is risk conscious, safe, promotes learning and collaborative behaviour, and has management commitment and responsibility.

2B. Expectations

Leaders at all levels within the Aircraft Operator:

2B.1 Are accountable for the effective management of the safety risks in their business
2B.2 Demonstrate safety leadership through measurable actions
2B.3 Motivate, coach and develop personnel to manage safety risks effectively
2B.4 Hold individuals accountable for their safety performance and behaviours

2C. Processes and practices

2C.1 Leaders - Know the safety risks associated with their position, responsibilities in the company and how they are managed

2C.2 Take corrective action if the controls for a risk are ineffective

2C.3 Communicate the operator's Safety Policies to their personnel and relevant subcontractors

2C.4 Plan and make base visits to engage with their personnel and relevant sub-contractors about safety

2C.5 Participate in safety activities, team meetings, and safety programmes and campaigns

2C.6 Act as a role model for safety compliance, intervene during day-to-day activities whenever safety requirements are not being met

2C.7 Report safety issues and Near Misses and encourage their personnel to do the same

2C.8 Provide constructive feedback to their personnel on their safety behaviours and performance

2C.9 Evaluate the safety culture within their company regularly

2C.10 Develop their own competence and that of their team in line with company requirements to manage safety risks effectively

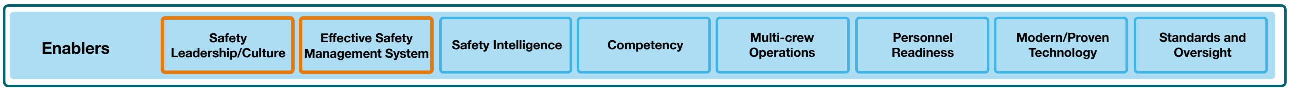
2C.11 Include safety behaviours in decisions about recruitment, performance and personnel development

2C.12 Monitor and reinforce compliance with the company's procedures, applicable laws and regulations and take appropriate action to correct deficiencies

2C.13 Apply Just Culture consequence management for those who break rules and those who create the conditions for rule breaking.

Other references

- ICAO Annex 19 Appendix 2
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- IOGP Report 452 - *Shaping safety culture through safety leadership*
- IOGP Report 453 - *Safety Leadership in Practice: A Guide for Managers*
- IOGP Report 597 - *Fabrication site construction safety recommended practice – Enabling activities*HeliOffshore Safety Performance Model



3. Safety Accountabilities and Responsibilities

3A. Purpose:

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

3B. Expectations:

The aircraft operator has appointed key personnel and with defined accountabilities.

3C. Processes and practices

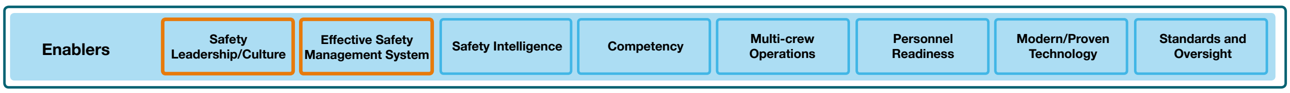
3C.1 The Accountable Executive has ultimate responsibility and accountability for the implementation, finance, and maintenance of the SMS, irrespective of other functions.

3C.2 The Accountable Executive has authority to ensure all activities can be financed and carried out to the required standard, has final accountability for all safety issues, and has appointed a Safety Manager.

3C.3 Clear lines of safety accountability are in place and documented throughout the organisation, including a direct accountability for safety for all members of management, regardless of other duties, as well as of other staff.

Other references

- ICAO Annex 19 Appendix 2
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for FAA Order 8000.3698
- CASA Part 119.19
- HeliOffshore Safety Performance Model



4. Key Safety Personnel

4A. Purpose:

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

4B. Expectations:

Key Safety Personnel have defined competencies.

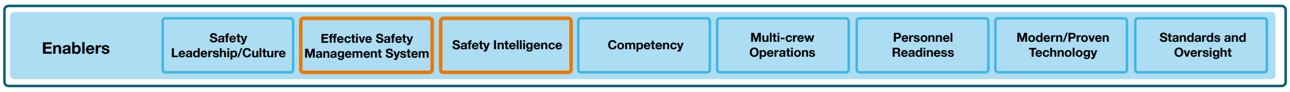
4C. Processes and practices

4C.1 All operational staff, supervisors and management have defined competencies requirements for safety-critical activities and sufficient resources to manage and operate effectively within the SMS.

4C.2 Create appropriate safety committees.

Other references

- ICAO Annex 19 Appendix 2
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 – Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- HeliOffshore Safety Performance Model



5. Emergency Response Planning

5A. Purpose:

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

5B. Expectations:

Emergency response planning is coordinated.

5C. Processes and practices

5C.1 An Emergency Response Plan (ERP) has been established, with country, regional or global ERP to meet the company needs and response objectives covering credible scenarios.

5C.2 The Emergency Response Organisation is staffed to be able to manage credible scenarios.

5C.3 Emergency responders are trained to a competence level to match their roles and responsibilities as outlined in the ERP.

5C.4 ERP process reviews and exercises (at a minimum desktop) with aviation related objectives are conducted prior to commencement of operations, and then on a scheduled basis, at a minimum annually, for ongoing operations.

5C.5 The exercises test the integrity of the ERP by including credible scenarios, such as one of the following scenarios, in each operational base:

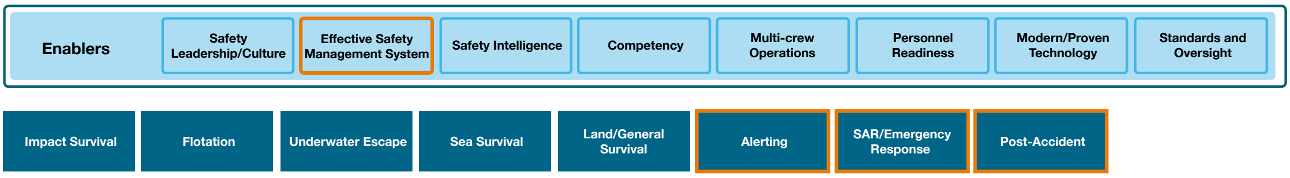
- Accident on arrival or departure
- Overdue Aircraft
- Accident/Ditching enroute
- Helicopter accident on a remote helideck
- Helicopter ditching in rescue range of a facility or vessel

5C.6 A post exercise review process is in place to record exercise learnings and track them to closure.

5C.7 In addition, they test and validate bridging communications between the company, the aircraft operator and all SAR resources.

Other references

- ICAO Annex 19 Appendix 2
- ICAO Doc 9481 Emergency Response Guidance
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- HeliOffshore Safety Performance Model



6. SMS Documentation

6A. Purpose:

To ensure Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

6B. Expectations:

The SMS has documented procedures.

6C. Processes and practices

6C.1 There are documented, detailed procedures covering all SMS activities and processes, as well as more broadly documented procedures for safety critical activities related to aircraft operations, including flight operations, aircraft maintenance and ground operations.

Other references

- ICAO Annex 19 Appendix 2
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

7. Safety Risk Assessment and Hazard Identification

7A. Purpose:

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

7B. Expectations:

The aircraft operator has established Hazard and Risk Management (HRM) system.

7C. Processes and practices

7C.1 A Hazard and Risk Management system (HRM) is documented that reflects the size and complexity of the operator.

7C.2 The HRM identifies actual and potential safety hazards, occurrences, assesses the associated risks and includes consideration of human performance, safety culture and threat and error management.

7C.3 The HRM identifies and address generic, mission specific, and location specific hazards.

7C.4 All the hazards identified are assessed using the company's Risk Assessment process, and the assessment of these risks is documented in a Hazards and Effects Register. A demonstration is provided, within a documented format or software system, that all identified hazards are assessed, tracked, mitigated, and managed to ALARP. This demonstration: shows the risk assessment rating assigned to each identified hazard; links high rated hazards to specific barriers and controls in an appropriate manner (e.g., Bow Ties); provides a document reference for the barriers and controls if said measure is procedural or training; and assigns a responsible department or job title to each barrier or control – controls identified for location specific hazards are to be assigned local responsibility.

7C.5 The HRM is demonstrably linked to the operators Safety Reporting and Investigation process.

7C.6 A Remedial Action Plan is in place to close identified gaps.

Other references

- ICAO Annex 19 Appendix 2
- IOGP Report 510 – Operating Management System Framework
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- UK CAA CAP795 Safety Management Systems – Guidance to Organisations
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

8. Incident Reporting, Investigation and Learning

8A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

8B. Expectations

Safety reporting procedures are in place.

8C. Processes and practices

8C.1 Safety reporting procedures are in place covering all regulatory and non-regulatory reports, including the reporting of lower level incidents or occurrences, hazards and near-miss events. These procedures and the systems in place allow for anonymous reporting.

8C.2 Reporting is encouraged and tools are provided to personnel to proactively report any incident, occurrence, hazard, error, or near-miss event they become aware of, as soon as possible.

8C.3 Incidents are reported to the Company as detailed in its contract and the Operator allows access for investigations when agreed.

8C.4 All incidents are assessed using the company's Risk Assessment process.

8C.5 The investigation process is aligned with ICAO Annex 13, Aircraft Accident and Incident Investigation, uses trained investigators, reviews the effectiveness of the Hazard Risk Management (HRM) barriers and generates recommendations.

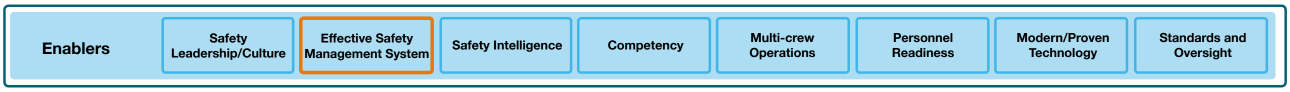
8C.6 The recommendations are tracked to closure, any modified controls or barriers identified are put in place, and a feedback process to the reporter and to the organisation is included.

8C.7 A process is in place to learn from significant and high potential incidents through communication and implementation of required actions.

8C.8 Safety occurrences are shared with relevant industry safety bodies and as part of it continuous improvement, the organisation uses safety events from the industry as part of its HRM analysis process.

Other references

- ICAO Annex 19 Appendix 2
- ICAO Annex 13 – Aircraft Accident and Incident Investigation - Standards and Recommended Practices for aircraft accident and incident Investigation
- UK CAA CAP 795 – Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- IOGP Report 510 – *Operating Management System Framework*
- HeliOffshore Safety Performance Model



9. Safety Performance Monitoring

9A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

9B. Expectations

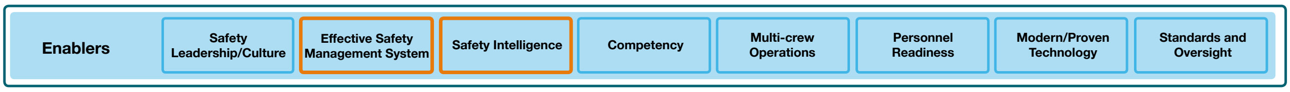
The aircraft operator measures the safety performance of the organisation.

9C. Processes and practices

Safety Performance Indicators (SPIs) are established to monitor and measure the safety performance of the organisation, and the effectiveness of the SMS for continuous improvement.

Other references

- ICAO Annex 19 Appendix 2
- UK CAA CAP 795 – Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- IOGP Report 510 – *Operating Management System Framework*
- HeliOffshore Safety Performance Model



10. Management of Change

10A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

10B. Expectations

There is an effective Management Of Change (MOC) process.

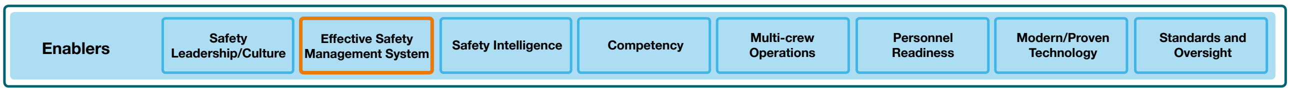
10C. Processes and practices

10C.1 A defined MOC procedure is in place to manage the risks associated with significant changes related to aircraft operations, including key personnel.

10C.2 The MOC identifies changes that introduce new hazards, or impact the effectiveness of the existing barriers or controls in the HRM Process and includes a process to track the effectiveness of the actions

Other references

- ICAO Annex 19 Appendix 2
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- HeliOffshore Safety Performance Model



11. Continuous Improvement - Assurance

11A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

11B. Expectation

A Quality Assurance (Compliance Monitoring) system is in place

11C. Processes and practices

11C.1 A Quality Assurance (QA) system, in addition to, or in the absence of NAA requirements, covering flight operations, maintenance activities, ground operations, the SMS and HRM is developed, documented, and implemented.

11C.2 A QA Manager is appointed.

11C.3 The QA system details a programme of risk-based audits using trained personnel, independent from the activities to be audited

11C.4 The audit programme covers internal processes, specialised activities, such as HFDM and HUMS, as well any externally contracted operations or activities.

11C.5 The QA system monitors compliance with, and the effectiveness of, the risk barriers and controls detailed in the operator's published HRM or Safety Case.

11C.6 A functioning records/data management system which also tracks all audits, non-compliances and corrective actions, to closure is in place

11C.7 Performance indicators are tracked to monitor the effectiveness of the QA system.

Other references

- ISO 9001: 2015, Quality Management Systems
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 – Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.19
- CASA Safety Management System resource kit: Booklet 3 - Safety Risk Management
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

12. Training and Education

12A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

12B. Expectations

Key Safety Personnel are trained and educated to understand the SMS.

12C.Processes and practices

12C.1 Operational staff understand the organisation's safety policy and the principles and processes of the organisation's SMS

12C.2 Managers and supervisors understand the safety process, hazard identification, risk management and the management of change.

12C.3 The accountable manager has an awareness of SMS roles and responsibilities, safety policy, safety culture, SMS standards, and safety assurance.

12C.4 Staff have initial induction and recurrent training to ensure continued competence appropriate to the level of involvement in the SMS

Other references

- ICAO Annex 19 Appendix 2
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 – Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

13. Safety Communication

13A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

13B. Expectations

Safety information monitored, shared and reviewed by Management.

13C. Processes and practices

13C.1 Safety Commitment and Policy Documents, based on Just Culture, are in place;

13C.2 There is a range of safety promotion and communication processes to enable an effective, two-way flow of information.

13C.3 There are formal meetings where all staff can engage in discussion on safety topics either directly or through appropriate representation.

13C.4 There is a yearly management review process is based on a defined hierarchy of meetings and it gives senior managers visibility of the SMS activity, in particular:

- Safety reporting and performance (KPI and SPI)
- The effectiveness of the HRM process
- Issues arising from the aircraft operator's Quality Assurance process

13C.5 Safety information is disseminated via newsletters, safety bulletins, etc.

Other references

- ICAO Annex 19 Appendix 2
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 – Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

14. Line Operations Safety Audit

14A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

14B. Expectation

The aircraft operator has a structured Line Operations Safety Audit (LOSA) programme.

14C. Processes and practices

14C.1 The LOSA programme complies with ICAO Doc 9803.

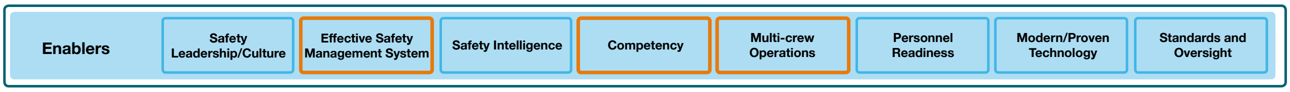
14C.2 The LOSA data is analysed and appropriate action plans implemented.

14C.3 LOSA observations are conducted periodically and a full observation cycle is conducted at a minimum every three years.

14C.4 FDM and LOSA observations are analysed collectively for added insight.

Other references

- FAA AC120-90
- ICAO Doc 9803
- HeliOffshore Safety Performance Model



15. Environmental Management

15A. Purpose

The prevention of damage to the environment and personnel.

15B. Expectation

The Aircraft Operator has Environmental management controls in place to prevent damage to the environment and people from pollution, waste, noise, etc.

15C. Processes and practices

15C.1 The hazards associated with the environment have been captured in the hazard and risk management process and the associated controls are in place.

15C.2 The environmental management controls follow local and/or national regulatory requirements

Other references

- ISO 14001 Environmental Management System
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

International Association of Oil & Gas Producers

IOGP REPORT 690-2

Aircraft Operations

1. Air Operator Certificate

1A. Purpose

Ensuring operation with all necessary approvals and with an effective system of documented operational procedures.

1B. Expectations

The aircraft operator holds a valid Air Operator Certificate (AOC) or equivalent, issued by the responsible regulatory authority, that covers the aircraft type(s), all aspects of the type of operation and the geographic area relevant to the contract. The AOC includes up-to-date Operations Specifications.

1C. Processes and Practices

1C.1 The aircraft operator has a suite of Operations Manuals with the necessary content, approved (or when applicable, accepted) by the responsible regulatory authority. This may be in one or more volumes and include or be supported by appropriate procedures. The Operations Manual covers normal and emergency operations and is suitable for the operational circumstances and the aircraft types operated.

1C.2 The aircraft operator demonstrates to the responsible regulatory authority that its management team, organisational structure, method of control and supervision of flight operations, training programs, ground handling, airworthiness and production arrangements meet the minimum standards defined by local regulations.

Other references

- ICAO Annex 6 Part 3 2.2 Operational Certification and Supervision
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

2. Management of personnel

2A. Purpose

Ensuring operation with all necessary approvals and with an effective system of documented operational procedures.

2B. Expectations

The aircraft operator has competent and experienced personnel in key management positions.

2C. Processes and Practices

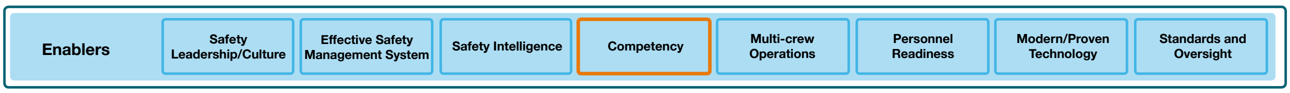
2C.1 The aircraft operator has the following management and operational positions

- 2C.1.1 The Accountable Manager for the Air Operators Certificate.
- 2C.1.2 A person with overall responsibility for managing the flight department
- 2C.1.3 A person responsible for managing flight training.
- 2C.1.4 A person responsible for safety and quality assurance.
- 2C.1.5 A person or third party responsible for managing continuing airworthiness requirements and aircraft maintenance.
- 2C.1.6 A person responsible for managing ground operations (appropriate to the size of the operator).
- 2C.1.7 Where the organisation has more than one operating base, the management structure addresses the required responsibilities at all locations.

2C.2 The aircraft operator has a documented procedure for the assessment of competence and experience for the above management and operational positions.

Other references

- ICAO Annex 6 Part 4.2.1.3
- HeliOffshore Safety Performance Model



3. Insurance

3A. Purpose

To provide protection against the risk of financial resulting loss from a safety event and to correctly apportion potential liabilities.

3B. Expectations

The aircraft operator holds the necessary insurance coverage for its operations.

3C. Processes and Practices

3C.1 The aircraft operator has the required insurance coverage as specified by the Company throughout the period of the contract.

3C.2 The Company is named as an additional insured party under the policy.

Other references

- HeliOffshore Safety Performance Model

4. Drug and Alcohol policy

4A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

4B. Expectations

The aircraft operator has a documented policy on the use/abuse of alcohol, medicines, and narcotics.

4C. Processes and practices

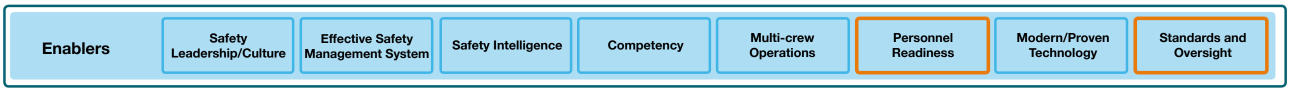
4C.1 The policy establishes a pre-hire, post-accident, for cause, and random testing policy and is compliant with national legislation.

4C.2 The policy defines an acceptable level of alcohol consumption for staff in safety-critical roles, including an alcohol-free period before duty.

4C.3 The policy provides guidance on which over-the-counter and prescribed medication can impair an individual's ability to perform in the cockpit or workplace.

Other references

- BARSOHO Implementation Guidelines v4 1.6
- HeliOffshore Safety Performance Model



FLIGHT OPERATIONS

5. Automation

5A. Purpose

Ensuring controlled flight can be sustained with, or without, the use of automation.

5B. Expectations

The aircraft operator has defined automation procedures.

5C. Processes and Practices

5C.1 The automation procedures contain requirements for the appropriate use of automation to reduce cockpit workload and increase standardisation.

5C.2 The automation procedures are defined for all phases of flight.

5C.3 Type-specific procedures for the use of automation are based on those published in the Flight Crew Operating manual (FCOM).

5C.4 The policy includes procedures for manual flight control to maintain flight proficiency including those conditions under which automation systems may be deselected and manual flight undertaken.

5C.5 The Minimum Equipment List (MEL) has clear requirements for the AFCS to be serviceable for night or IFR flights.

5C.6 For equipment details, see 690-5 - *Equipment Fit*, Section 3C.1

Other references

- BARSOHO Implementation Guidelines v4 Section 3.2 - Effective use of Automation.
- HeliOffshore Flightpath Management Recommended Practices (HO-FPM-RP-v2.0)
- HeliOffshore Safety Performance Model

FLIGHT OPERATIONS

6. Terrain Awareness Warning Systems (TAWS)

6A. Purpose

The prevention of Controlled Flight into Terrain (CFIT) accidents.

6B. Expectations

The aircraft operator has documented procedures for the use of TAWS and Helicopter Terrain Awareness Warning Systems (HTAWS).

6C. Processes and practices

6C.1 Flight crew SOPs and training includes the response to TAWS/HTAWS alerts.

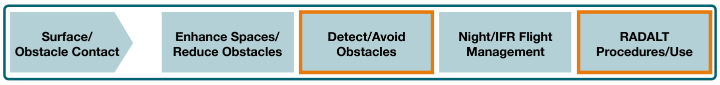
6C.2 If available and certified for the type, offshore modes are installed.

6C.3 There is a process to ensure that the latest version of the database for predictive terrain hazard warnings is installed.

6C.4 For equipment details, see 690-5 - *Equipment Fit*, Section 6C

Other references

- BARSOHO Implementation Guidelines v4 Section 3.2 - Effective use of Automation.
- HeliOffshore Safety Performance Model



FLIGHT OPERATIONS

7. Airborne Collision Avoidance Systems

7A. Purpose

The prevention of mid-air collisions.

7B. Expectations

The aircraft operator has documented procedures for the use of ACAS.

7C. Processes and practices

7C.1 Clear instructions and procedural guidance for crews is documented.

7C.2 Flight crew training includes the response to ACAS alerts.

7C.3 For equipment details see 690-5 - *Equipment Fit*, Section 7C.1

Other references

- BARSOHO Implementation Guidelines v4 Section 7.4 - Collision in the Air.
- HeliOffshore Safety Performance Model

FLIGHT OPERATIONS

8. Helicopter Flight Data Monitoring

8A. Purpose

The use of flight data to obtain operational feedback and reduce risks.

8B. Expectations

A Helicopter Flight Data Monitoring (HFDM) programme is in place.

8C. Processes and practices

8C.1 A Helicopter Flight Data Monitoring (HFDM) programme is established, documented, and aligned with the HeliOffshore HFDM Recommended Practices (HO-HFDM-RP-v1.0).

8C.2 Personnel are appointed to fill specific positions within the HFDM programme (such as analyst, gatekeeper or pilot liaison) and training is provided for all personnel appropriate to their responsibilities.

8C.3 HFDM data is downloaded from all aircraft daily as a minimum and a process for the review of the data is in place.

8C.4 HFDM event thresholds are implemented based on flight manual limitations, flight profiles, and Standard Operating Procedures (SOP):

- 8C.4.1 Data is analysed for threshold exceedance events daily (operational flight days) through either operator in-house data analysis or third-party services.
- 8C.4.2 At least three levels of operational risk for each event (Low, Medium, and High) are set and assessed.
- 8C.4.3 Medium and High operational risk events which require Flight Crew contacts are validated.
- 8C.4.4 Tracked Flight Crew contacts are made for every Medium and High operational risk HFDM event.
- 8C.4.5 For those events assessed as Medium operational risk, the crew contact, is at a minimum, an advisory contact by email or other means, to alert the Flight Crew of the event.
- 8C.4.6 For those events assessed as High operational risk, a more comprehensive contact is made, which involves a meeting between the pilot liaison and the Flight Crew involved.
- 8C.4.7 Trend monitoring of events, including Low operational risk events, as a routine part of the HFDM process, is in place.

8C.5 A process for communication and reporting of the HFDM data is established.

8C.6 A serviceability policy for both airborne and ground station equipment has been established.

- 8C.6.1 System unserviceability is not to exceed 25 flight hours between data downloads.

FLIGHT OPERATIONS

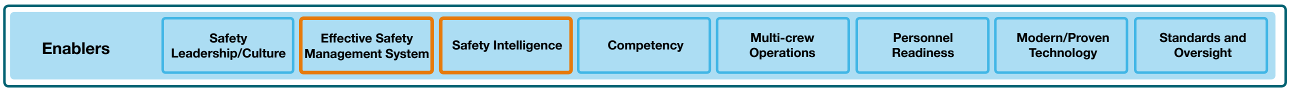
8C.7 The data download rate as a Key Performance Indicator (KPI) is tracked and the target is 95%.

8C.8 An HFDM review group meets at regular intervals to:

- 8C.8.1 Validate the reports, including a periodical review of de-identified HFDM data findings.
- 8C.8.2 Investigate significant events identified by the HFDM Programme.
- 8C.8.3 Reviews KPIs and trends.
- 8C.8.4 Make recommendations for suggested changes to operational procedures or the training syllabus and tracks their implementation.
- 8C.8.5 Periodically determine the effectiveness of thresholds.

Other references

- HeliOffshore HFDM Recommended Practices (HO-HFDM-RP-v1.0)
- UK CAA CAP 739 – Flight Data Monitoring
- FAA AC 120-82 - Flight Operational Quality Assurance
- BARSOHO Implementation Guidelines v4 1.2
- HeliOffshore Safety Performance Model



FLIGHT OPERATIONS

9. Helicopter performance class[1]

9A. Purpose

Ensuring flight operations and continuing airworthiness choices minimise the risk of critical failures and provide assurance of safe outcomes during all engine failure modes.

9B. Expectations

All CAT operations to offshore destinations are carried out in PC1, PC2E, PC2DLE, or PC2.

9C. Processes and practices

9C.1 Onshore take-offs, departures, approaches, and landings for the purpose of carrying passengers are conducted in accordance with PC1 criteria, unless specific circumstances dictate the use of PC2 criteria and then only when a safe forced landing can be assured in the event of a critical power unit loss.

9C.2 When performance planning for offshore take-offs, departures, approaches and landings, there is no exposure to deck edge strike or to a forced landing in the event of a critical power unit loss.

9C.3 The RFM PC1/PC2/PC2DLE/PC2e flight profiles are used, both onshore and offshore as appropriate[2].

Other references

- ICAO Annex 6 Part III Attachment A
- HeliOffshore Safety Performance Modele

[1] For definitions of performance classes, see Definitions, and for basic certification requirements, see 690-5 – Helicopter and Equipment Section 1 – Certification Standards.

[2] It is acceptable to vary from flight profiles if published in the Operations Manual provided that the aircraft mass is in accordance with the approved performance data.

FLIGHT CREW

10. Crew - Personal Protective Equipment

10A. Purpose

Ensuring crew are suitably dressed for the environment.

10B. Expectations

Crew have suitable Personal Protective Equipment (PPE) for the environment.

10C. Processes and practices

10C.1 All crew wear lifejackets meeting ETSO-2C504 with Personal Locator Beacons (PLBs) and Compressed Air Emergency Breathing Systems (CA EBS).

10C.1.1 PLBs with 121.5MHz, GPS and 406MHz capability, Advanced Automatic Identification System (AIS) are desirable

10C.1.2 PLBs are assessed for compatibility with the aircraft ELT

10C.2 Immersion suits are worn when required by regulation or by contract

10C.2.1 Immersion suits meet ETSO-2C502 or ETSO-2C503 or national aviation authority approved TSO and which have been tested for compatibility with the lifejacket.

Other references

- ETSO-2C502
- ETSO 2C503
- BARSOHO Implementation Guidelines v4 20.4 – Sea Survival
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

11. Flight Crew - Experience and Qualification

11A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

11B. Expectations

11B.1 Pilots are licensed and current in accordance with national regulatory requirements.
11B.2 Pilots (contracted and subcontracted) meet the required experience and qualification levels.

11C. Processes and practices

11C.1 Flight crew demonstrate the specified experience and qualification levels by one of three methods:

- Method 1 - Ab-Initio Entry Competency Based-Programme
- Method 2 - Commercial Pilot License (CPL) Entry Competency-Based Programme
- Method 3 - Experienced Flight Crew – Alternative requirements

Operator Processes - General

11C.2 The operator demonstrates compliance with the chosen method through its training and assurance processes and is able to demonstrate to the Company, on audit and on request, that:

11C.2.1 There is a formal, modular, competency-based progression scheme for pilots from basic (ab initio/new hire/conversion) to command and for aircraft type conversion, (see Method 1 below), based on the specifications in Table 1 and the pilot aircraft conversion syllabus in 690-2, Section 45 - Pilot aircraft conversion syllabus and minimum hours.

11C.2.2 The content of the training syllabus, including comprehensive ground and flight training, particularly for entry at the CPL stage (see Method 2 below), is based on regulatory training schemes.

11C.2.3 There is a formal command progression scheme for pilots from ab initio to command, including Crew Resource Management (CRM) and simulator programmes including Line Oriented Flight Training (LOFT).

11C.2.4 Training records demonstrate a structured command course, competencies to be achieved and the associated checking process.

11C.2.5 There is a process for the selection, training, and designation of LTCs

11C.2.6 Base and Line training staff have defined competencies and these staff themselves are regularly checked.

11C.2.7 The programme being offered meets FAA and/or EASA regulatory requirements standards at the highest level of flight training.

FLIGHT CREW

Method 1 - Ab-Initio Entry Competency Based-Programme

11C.3 For Ab-Intio entry a pilot commences the programme at Table 1 – Stage 1 and follows the defined stages.

Method 2 - Commercial Pilot License (CPL) Entry Competency-Based Programme

This is designed for pilots that hold a CPL, but are still to attain the flying hours specified in Table 2. Pilots enter the programme at Table 1 – Stage 4.

11C.4 When a candidate is selected to enter with a CPL the following conditions apply:

11C.5 Individual aptitude testing is completed in accordance with Table 1 - Stage 1

11C.6 The candidate holds an ATPL theory qualification.

11C.7 Full training records are held for the CPL training including records of stage and final check flights, and total hours are validated by the training provider.

Table 11-1: Ab initio and CPL Competency-based programme (See Notes 1,4,5)

Stage	Subject	Content
1 Ab-Inito Entry	Detailed pilot aptitude testing required prior to enrolment in the programme	Testing includes evaluation of language skills, cognitive abilities, hand-eye coordination, ability to apply theory and team coordination, etc.
2	CPL(H) training at approved flight training organisation (FTO) (See Note 1)	ATP theory required for operations on multi-pilot helicopters
3	IR(H) training at approved FTO	IR(H) Course completed successfully
4 CPL Entry	CPLH/IR(H)	Individual may pass the entry process for operator *ab initio* programme with CPL or can enter programme with CPL as result of structured recruitment process
5	Operator training programme	Multi Pilot Type Rating Course Multi Crew Co-operation Course (See Note 3) Type IR Course Operator Conversion Course - A/C and FS Flight tests by different TRE Combined VMC Licence Skill Test and OPC Type IR Skill Test
6	Non-revenue offshore deck landing training by day and night with TRE	WDD and HUET Training Minimum 5 day and 5-night deck landings Competence check for release to Line Training Minimum 5 flight hours
7	Line Training Ground Course	GPS training Flight Planning Dangerous Goods training Simulator line flight or jump seat line familiarisation.
8	Line flying under supervision of a Line Training Captain (LTC)	Minimum 10 offshore landings by day and night Progress report required for all flights.
9	Line check as co-pilot by different LTC	Includes an offshore landing and take-off.
10	Released to line	Ab initio pilots and CPL(H) holders with less than 1000 hours – with any commander who has no less than 500 hours PIC time including 100 hours on type Day only unless fully night qualified.

FLIGHT CREW

Stage	Subject	Content
11	Progressive monitoring online as First Officer (FO)	2 qualifying flight reports per month with a Training Captain or LTC Recurrent training and OPC/LPC checks 6-monthly progress reviews with training staff Written records of above elements Can be released to any PIC when has 500 hours
12	Promotion to Senior FO	Approximately at the 2-year point – promotion board or management evaluation with CP, CTC SLTC. Monitoring continues as above
13	Command Course (at approximately the 4-year point)	Minimum requirements – ATPLH, helicopter. May time as PICUS gained in accordance with the Operator's procedures Technical exam RHS checks FS or FTD 3 Training and Assessment CRM assessment Command Line Training Command Line Check by different LTC.
14	Promotion to Command	Initially only qualified to fly in command with co-pilots who have 500 hours total experience including 100 hours on type until the new commander has accumulated 500 hours in command.

Table notes
1. The State approved flight training school(s) and curriculum are to EASA/FAA or equivalent standards.
2. For details on the Multi Crew Co-operation Courses refer to EASA approved flight training establishments.
3. The programme meets FAA and/or EASA standards.
4. Detailed training records are maintained for all phases of the training programme.
5. These records reflect the results of each training session and include the standards to which the pilot was able to complete the exercise or flight requirement.

Method 3 - Experienced Flight Crew – Alternative requirements

11C.8 If an operator training programme does not support the Method 1 Ab-Initio Entry or Method 2 CPL - Entry programmes above, the experience levels in Tables 2 and 3 apply.

Table 11-2: Aircraft Commander and Co-pilot qualifications

Qualification	Experience
Total hours previous 90 days (See note 1)	50 hours of which at least 10 on type
Medical certificate appropriate for license	Current
Instrument rating	Current; OPC at 6-monthly intervals
Night offshore recency previous 90 days	3 cycles (See notes 2 & 3)
CRM or ADM, initial/refresher	Annual
Dangerous Goods awareness	Every 2 years or in accordance with local regulatory requirements
Offshore experience	One year
Helicopter Underwater Escape Training (HUET)	Every 4 years

Table 2 Notes:

1. If hours are not met, a line check (which maybe a normal revenue flight) is conducted by a Line Training Captain.

2. One-night cycle consists of a night take-off, approach and landing to an offshore location. A simulator of the same type or series being flown may be used to meet the night recency requirements, provided this is acceptable under national legislation, and it has the visual fidelity to replicate landing on an offshore facility.

FLIGHT CREW

Table 11-3: Helicopter pilot experience and qualification levels

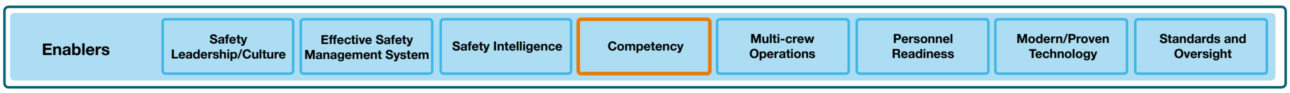
Qualifications and experience	FAR / CS 29	FAR / CS 27
Pilot in Command (PIC)		
License	ATPL(H)	ATPL(H)
Instrument rating (see Table 2)	Current	Current
Total hours helicopter (1,2,4)	3,000	2,000
Total hours in command (1,3)	1,500	1,000
Total hours in command Multi-Engined (1, 3)	1,200	500
Total hours in similar aircraft complexity	500	500
Total hours in command on contract type	100	100
Co-Pilot		
License	CPL(H)	CPL(H)
Instrument rating (see Table 1.6.2)	Current	Current
Total hours	500	500
Total hours Multi Engined (1,3)	500	250
Total hours in command (1)	100	100
Total hours on contract type (1)	50	50

Table 3 Notes:

1. These hours to be fully on helicopters. Up to 10% may be achieved in a flight simulator approved for the purpose by the regulatory authority.
2. These hours include a minimum of 25 hours of night offshore time.
3. For PICUS requirements see Section 12; Co-pilots who do not meet 100-hour captain experience may be used provided that each co-pilot has successfully completed the following training which is documented in the pilot's training records:
   - An approved type rating course for the aircraft type
   - A technical, emergencies and CRM course or Operator Proficiency Check at the appropriate type-specific flight simulator prior to commencing operational flying
   - 50 hours of operational line flying with an approved Training Captain
   - A successful Line Check flight by a different Check and Training Captain
4. Total hours may be reduced by 1000 hrs when total hours in aircraft of similar complexity exceeds 1000 hrs and no dispensation has been granted for the other Commander qualification requirements.

Other references

- BARSOHO Implementation Guidelines v4 CE 1.4 and Appendix 1
- HeliOffshore Safety Performance Model



FLIGHT CREW

12. Flight crew experience - Pilot In Command Under Supervision (PICUS) Flight Time

12A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

12B. Expectations

Co-pilots are permitted to log PICUS time to meet the requirements of command time in Tables 1.6.2 and 1.6.2.

12C. Processes and practices

12C.1 In those countries where the regulator has an allowance for logging these hours, the operator uses the approved national programme.

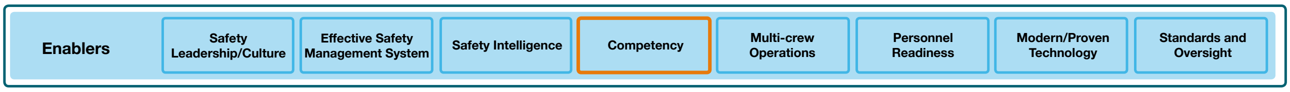
12C.2 The logged time as PICUS meets the requirements of 1.6.2 and 3, provided:

12C.2.1 the operator has control and supervision over the programme

12C.2.2 the flight time is recorded in the pilot's training records

Other references

- HeliOffshore Safety Performance Model



13. Medical certification

13A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

13B. Expectations

All pilots hold a valid medical certificate appropriate to their age and licence (e.g., CPL, ATPL) requirements.

13C. Processes and practices

13C.1 The local National Aviation Authority and/or company policy determines the frequency of medical examinations.

Other references

- ICAO Annex 1 Chapter 6
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

FLIGHT CREW

14. Use of subcontracted pilots

14A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

14B. Expectations

The aircraft operator may use subcontracted pilots subject to certain conditions.

14C. Processes and practices

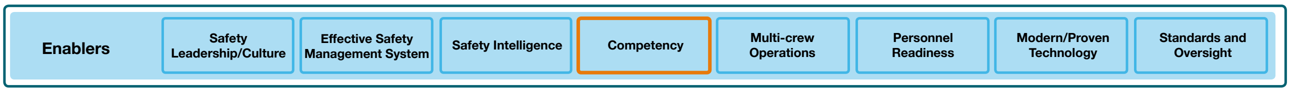
14C.1 Subcontracted pilots meet all the operators flying qualification and experience level requirements

14C.2 Licence Proficiency Checks (LPC) or Operational Proficiency Checks (OPC) (or equivalent) conversion training is in accordance with national regulations. If time between engagements exceeds time between required OPCs, the operator's absence and recency requirements also apply to the subcontracted pilots – see 690-2, Section 40 .

14C.3 Subcontracted pilots inform the aircraft operator of all their flight and duty times.

Other references

- BARSOHO Implementation Guidelines v4 1.6
- HeliOffshore Safety Performance Model



FLIGHT CREW

15. Pilots flying more than one aircraft type

15A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

15B. Expectations

Pilots may fly more than one type subject to certain conditions

15C. Processes and practices

15C.1 The aircraft operator has a written policy on the subject, which applies across their operations, and which complies with national legislation.

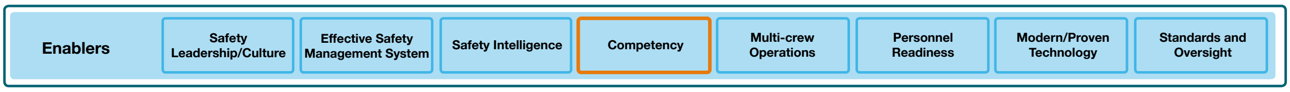
15C.2 The policy includes the requirement for the pilot to maintain recency and proficiency on those types on which he is permitted to fly Commercial Air Transport (CAT).

15C.3 Recency and proficiency on multiple types is closely monitored.

15C.4 The aircraft operator schedules pilots to fly only one type in any one day or block of days and normally limits flying a maximum of two types or significantly different variants in any one day.

Other references

- HeliOffshore Safety Performance Model



FLIGHT CREW

16. Composition of flight crew

16A. Purpose

Ensuring flight crew handling and monitoring duties are appropriately divided, defined, and conducted in line with human factors principles

16B. Expectations

Aircraft are appropriately crewed for the task and environment.

16C. Processes and practices

16C.1 Two pilots operate the aircraft.

16C.2 The aircraft operator has procedures outlining the duties and responsibilities of all flight crew members, specifically 'Pilot Flying' and 'Pilot Monitoring' roles and tasks are defined.

Other references

- ICAO Annex 6 Vol 3 Chapter 7
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

17. Flight crew fatigue management - Flight time limits

17A. Purpose

Ensuring flight crew personnel are alert and fit-for-work.

17B. Expectations

The aircraft operator has established limits for flight times.

17C. Processes and practices

17C.1 Additional restrictions may be required for particularly demanding flights, such as offshore shuttling, or for operations in locally high ambient temperatures.

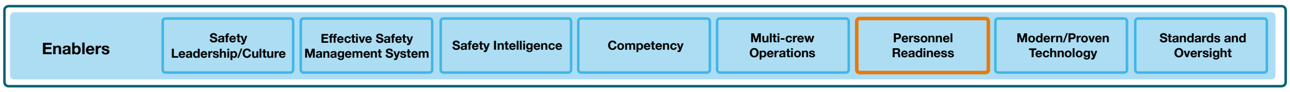
17C.2 Maximum flight times meet the criteria in the table 17-1:

Table 17-1: Maximum flight times

Period (consecutive days)	1	7	28	365
Maximum flight time in period for dual-pilot crew (hours)	10	45	120	1200

Other references

- ICAO Annex 6 Vol 3 Chapter 2.8
- ICAO Doc 9966
- ICAO Annex 6 Vol 3 Appendix 6
- HeliOffshore Safety Performance Model



FLIGHT CREW FATIGUE MANAGEMENT

18. Flight crew fatigue management - Flight duty times and rest periods

18A. Purpose

Ensuring flight crew personnel are alert and fit-for-work.

18B. Expectations

The aircraft operator has established limits for flight crew duty times

18C. Processes and practices

18C.1 The maximum FDP is 14 hours.

18C.2 This includes administrative/office time, flight planning, flight preparation, flight time, post flight duties, completion of any associated maintenance or paperwork.

18C.3 The operations manual defines when the duty day starts and ends and how the FDP is calculated.

18C.4 The minimum rest period is 10 hours, or the length of the preceding FDP, whichever is the greater.

18C.5 When an extension to the FDP is necessary, the air operator will have implemented a Fatigue Risk Management System (FRMS).

Other references

- ICAO Annex 6 Vol 3 Chapter 2.8
- ICAO Doc 9966
- ICAO Annex 6 Vol 3 Appendix 6
- ICAO Fatigue Risk Management System (FRMS) Implementation guide for operators
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

FLIGHT CREW FATIGUE MANAGEMENT

19. Flight crew fatigue management – Rest for rotating crews

19A. Purpose

Ensuring the flight crew are suitable rested for the type of operation.

19B. Expectations

The aircraft operator has established a rest policy for rotating crews, if applicable.

19C. Processes and practices

19C.1 Crews on rotating assignments that arrive following prolonged or overnight travel, or travel exceeding four time zone changes, are not rostered for flying duties until the minimum ten-hour rest period is met.

Other references

- ICAO Annex 6 Vol 3 Chapter 2.8
- ICAO Doc 9966
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

20. Flight crew fatigue management – Night standby duty

20A. Purpose

Ensuring the flight crew are suitable rested for the type of operation.

20B. Expectations

The aircraft operator has established a policy for night standby duty, if applicable.

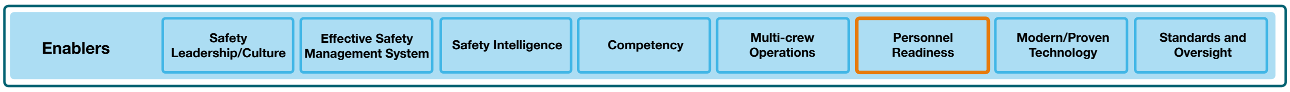
20C. Processes and practices

20C.1 After a day duty period, each pilot has at least 12 hours rest prior to being rostered for night standby duty.

20C.2 Pilots nominated for night standby duty (at their place of rest) who are not called out to fly, may be considered available for duty in the following day period. If the pilots are called out to fly during the night, they have a minimum of 12 hours rest after completion of their FDP.

Other references

- ICAO Annex 6 Vol 3 Chapter 2.8
- ICAO Doc 9966
- HeliOffshore Safety Performance Model



21. Aviation weather - IFR/VFR

21A. Purpose

Establishing weather limitations consistent with the capabilities of the aircraft and rescue assets are applied to each flight, with provision for appropriate training in anticipated conditions.

21B. Expectations

All CAT flights are conducted under IFR when possible.

21C. Processes and practices

21C.1 IFR operations comply with local regulatory IFR weather minima unless more stringent Company requirements are issued.

21C.2 The flight may be conducted under VFR, if this is a safer option, or when IFR flight is not possible

21C.3 VFR minima are described in table 21-1

Table 21-1: Offshore VFR minima

	Minimum operating height (Feet)	Cloud Base (Feet)	Visibility (Meters)	Specific Requirements
Day	500	600 (See note 1)	5000	ICAO Minima
	300	400	2000 (See note 2)	Offshore inter-field use only if sector is less than 10nm
Night	500	600	5000 (See note 3)	Offshore inter-field use only if sector is less than 10nm

Notes:
1. Minimum cloud base may be reduced to 500ft subject to NAA approval
2. Minimum visibility may be reduced to 800m subject to NAA approval
3. Minimum visibility may be reduced to 1500m subject to NAA approval

Other references

- ICAO Annex 6 Part 3 Chapter 2.3.5
- HeliOffshore Safety Performance Model

AVIATION WEATHER

22. Aviation weather - Adverse weather policy

22A. Purpose

Establishing weather limitations consistent with the capabilities of the aircraft and rescue assets are applied to each flight, with provision for appropriate training in anticipated conditions.

22B. Expectations

An Adverse Weather Policy has been developed by the company in conjunction with the aircraft operator.

22C. Processes and practices

22C.1 An Adverse Weather Policy is in place which has been developed by the company in conjunction with the aircraft operator.

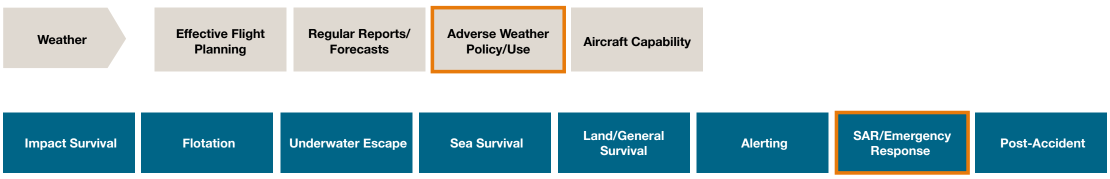
22C.2 The Adverse Weather Policy clearly states under what conditions flying operations are be restricted or temporarily halted and is supported by appropriate procedures. Situations include:

- Excessive wind over helidecks prohibiting personnel movement to and from the helicopter;
- Adverse sea conditions resulting in an unacceptable risk of immediate capsize, or preventing effective offshore search and rescue available for the area of operations;
- Significant Wave Height (SWH) over the ditching certified capability of the helicopter, see 690-5 – *Equipment Fit* – Section 16C.2.

22C.3 It considers the aircraft type and survival equipment in use, the available SAR capability and applicable Emergency Response Plans and is revised when material changes to these considerations occur.

Other references

- ICAO Annex 6 Vol 3 Attachment A 3.3.3
- HeliOffshore Safety Performance Model



23. Helidecks - Helideck landing limits

23A. Purpose

Ensuring a safe envelope for vessel movements to enable a safe landing and stability when on the helideck.

23B. Expectations

The aircraft operator has established pitch, roll and heave limits for helideck operations.

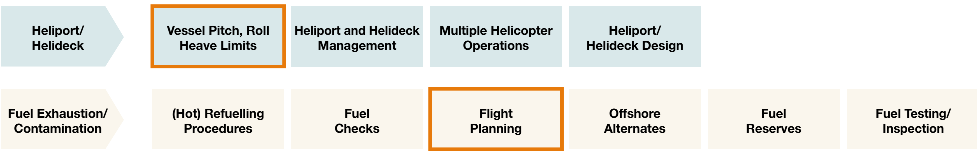
23C. Processes and practices

23C.1 Unless approved to operate to other national limits, the limits in the Helideck Certification Agency's Helideck Limitations List Part C are used: http://www.helidecks.org/download%20files/HLL%20-%20Part%20C%20-%20p%20r%20h.pdf

23C.2 These limits are only applicable for landing, not for takeoff.

Other references

- UK CAA CAP 437
- Helicopter Safety Advisory Committee (HSAC) Recommended Practices (RP) 163 – 2nd Edition (January 2020)
- Helicopter Safety Advisory Committee – Helideck RPs
- ICS Guide to Helicopter-Ship Operations Chapters 3.7.3, 4.2.3
- HeliOffshore Safety Performance Model



FLIGHT OPERATIONS – HELIDECKS

24. Helidecks - Measurement of helideck motion

24A. Purpose

Ensuring a safe envelope for vessel movements to enable a safe landing and stability when on the helideck.

24B. Expectations

The aircraft operator only operates to moving helidecks when the reported motion is within limits for the helicopter.

24C. Processes and practices

24C.1 When mandated by local operating requirements, and otherwise where available, electronic deck motion and wind monitoring equipment is used that meets the latest requirements of CAP 437 or an equivalent standard.

24C.2 The helideck motion and wind information is available to and used by pilots for pre-flight planning and updated information is passed to the crew before landing, and at any time there is a significant change in conditions (see 690-2 Section 25 - Significant change in helideck conditions) The flight crew must verify that the reported helideck motion is within limits before landing.

24C.3 When a vessel gives clearance for a helicopter to land on deck, the vessel intends to maintain the existing heading while the helicopter remains on the deck. The monitoring station providing deck motion limits and wind data is manned during the entire time the helicopter is operating on the deck.

Other references

- CAP 437
- HSAC RP 163 – 2nd Edition (January 2020)
- ICS Guide to Helicopter-Ship Operations Chapters 3.7.3, 4.2.3
- Helideck Certification Agency - Helideck Limitations List Part C
- HeliOffshore Safety Performance Model

Heliport/ Helideck	Vessel Pitch, Roll Heave Limits	Heliport and Helideck Management	Multiple Helicopter Operations	Heliport/ Helideck Design

FLIGHT OPERATIONS – HELIDECKS

25. Helidecks - Significant change in helideck conditions

25A. Purpose

Ensuring a safe envelope for vessel movements to enable a safe landing and stability when on the helideck.

25B. Expectations

The helicopter flight crew are informed if there are any significant changes to helideck conditions.

25C. Processes and practices

25C.1 The helicopter crew are notified immediately by radio if any of the following occurs:

- 25C.1.1 The vessel goes off heading by 10° or more
- 25C.1.2 There is a vessel/installation or station keeping/handling problem
- 25C.1.3 Helideck Motion exceeds the limits in the Helideck Certification Agency's Helideck Limitations List Part C or other national limits
- 25C.1.4 There is a significant change in the relative wind of 30° or more
- 25C.1.5 The monitoring equipment indicates a red deck
- 25C.1.6 There is any other abnormal event

Other references

- CAP 437
- Helicopter Safety Advisory Committee (HSAC) Recommended Practices (RP) 163 – 2nd Edition (January 2020)
- ICS Guide to Helicopter-Ship Operations Chapters 3.7.3, 4.2.3
- Helideck Certification Agency - Helideck Limitations List Part C
- HeliOffshore Safety Performance Model

FLIGHT PLANNING

26. Flight planning

26A. Purpose

Ensuring that a safe and efficient flight can be conducted.

26B. Expectations

The aircraft operator has established flight planning procedures.

26C. Processes and practices

26C.1 Flight planning procedures take account of:

26C.1.2 The configuration and serviceability of the helicopter, including MEL items

26C.1.3 Weather conditions and performance

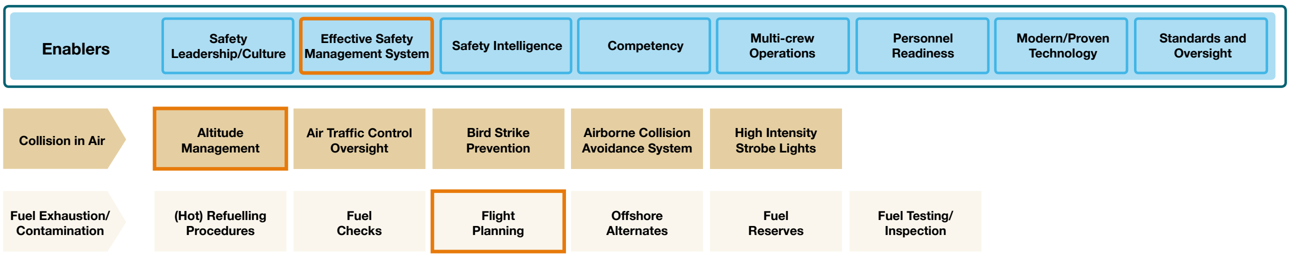
26C.1.4 Routing, manifest, fuel requirements and weight and balance

26C.1.5 Destination(s) and alternates

26C.1.6 Preparation of an operational flight plan

Other references

- CAP 437
- ICS Guide to Helicopter-Ship Operations Chapters 3.7.3, 4.2.3
- Helideck Certification Agency - Helideck Limitations List Part C
- HeliOffshore Safety Performance Model



FLIGHT PLANNING

27. Fuel planning

27A. Purpose

Ensuring aircraft depart with sufficient fuel reserves to avoid fuel exhaustion.

27B. Expectations

The aircraft operator has established flight planning procedures.

27C. Processes and practices

27C.1 Fuel planning for an IFR flight includes:

- 26C.1.1 Fuel used during start-up and taxi
- 26C.1.2 Fuel required for the route to the first point of intended landing
- 26C.1.3 Fuel required for ground running on helideck or helipad
- 26C.1.4 Fuel required for the route to onshore alternate heliport or offshore helideck
- 26C.1.5 Contingency fuel as defined by the NAA, plus 30 minutes final reserve

27C.2 Fuel planning for VFR offshore flights includes:

- 27C.2.1 Fuel used during start-up and taxi
- 27C.2.2 Fuel required for the route to the first point of intended landing
- 27C.2.3 Fuel required for ground running on helideck or helipad
- 27C.2.4 Fuel required for the route to an onshore alternate heliport or offshore helideck, plus 30 minutes

Other references

- ICAO Annex 6 Vol 3 Chapter 2.8
- HeliOffshore Safety Performance Model

Fuel Exhaustion/ Contamination	(Hot) Refuelling Procedures	Fuel Checks	Flight Planning	Offshore Alternates	Fuel Reserves	Fuel Testing/ Inspection

28. Offshore alternates - Planning

28A. Purpose

Ensuring offshore alternates are only used when OEI performance and alternative decks are guaranteed.

28B. Expectations

The aircraft operator has a documented policy on the use of offshore alternates, if applicable.

28C. Processes and practices

28C.1 Offshore installations are only used as alternates in exceptional circumstances and when agreed by the company. The following minimum requirements are applied before use of offshore alternates is approved:

- 28C.1.1 There is a procedure in the operations manual for the use of offshore alternates, and that procedure has been approved or accepted by the NAA
- 28C.1.2 A Point of No Return (PNR) is established:
  - 28C.1.2.1 Before the PNR, an onshore alternate is available
  - 28C.1.2.2 The PNR is within 30 minutes planned flying time from the destination calculated by using en-route weather reports
- 28C.1.3 OEI landing capability is assured at the alternate
  - 28C.1.3.1 The use of an offshore alternate is restricted to helicopters that can achieve OEI IGE hover at an appropriate power rating at the offshore alternate.
  - 28C.1.3.2 Where the surface of the offshore alternate helideck, or prevailing conditions (especially wind velocity), precludes an OEI IGE hover, OEI OGE hover performance at an appropriate power rating is used to compute the landing weight.
  - 28C.1.3.3 The landing weight is calculated from data provided in the aircraft flight manual. When calculating this landing weight, account is taken of helicopter configuration, environmental conditions and the operation of systems that have an adverse effect on performance.
  - 28C.1.3.4 The planned landing weight of the helicopter, including 30 minutes of final reserve fuel, will not exceed the OEI landing mass at the time of approach to the offshore alternate.
- 28C.1.4 Deck availability is guaranteed.
  - 28C.1.4.1 The dimensions, configuration and obstacle clearance of individual helidecks or other sites is assessed in order to establish operational suitability for use as an alternate by each helicopter type used.

FLIGHT PLANNING

28C.1.4.2 In addition, the duty holder of the nominated offshore alternate must have guaranteed the availability of the deck (no other planned helicopter operations, a clear deck, and no crane operations) before the flight may be dispatched.

28C.1.5 The weather forecast for the offshore destination and offshore alternate is suitable.

28C.1.5.1 When use of an offshore alternate is planned, a helideck is not planned as a destination or offshore alternate unless the weather forecast indicates that, at ETA ±1 hour, the weather conditions will be at or above the planning minima shown in table 28-1:

Table 28-1: Weather Minima

	Day	Night
Cloud Base	600 Ft	1000 Ft
Visibility	4000 m	5000

28C.1.5.2 Where fog is forecast, or has been observed within the last two hours within 60 NM of the destination or alternate, offshore alternates are not be used.

28C.1.6 When an offshore alternate is planned, the meteorological observations at the destination and alternate, are taken by a qualified observer, or AWOS acceptable to the NAA.

28C.1.7 The helicopter MEL reflects essential requirements for this type of operation and there are no open defects relating to MEL items required for the use of offshore alternates.

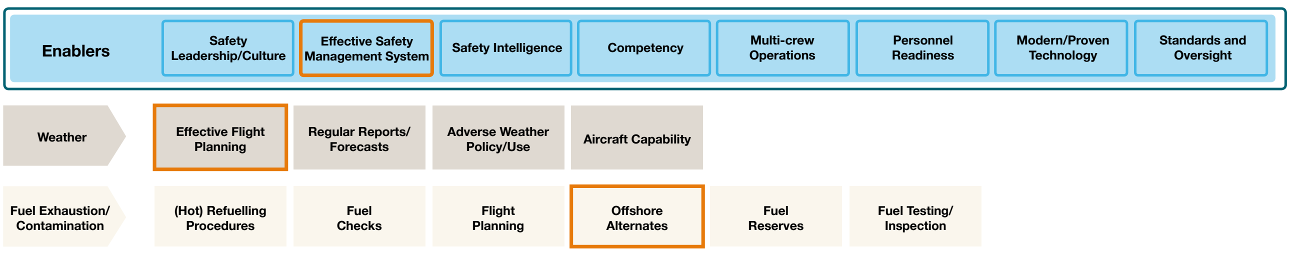
28C.1.8 Any spare payload capacity is used to carry additional fuel, if it would facilitate the use of an onshore alternate.

28C.1.9 The installation selected as suitable for nomination as an offshore alternate must have an approved aircraft refuelling capability with all recent serviceability and fuel testing checks completed.

28C.1.10 Mechanical reliability of critical control systems and critical components are considered when determining the suitability of the alternate.

Other references

- ICAO Annex 6 Vol 3 Chapter 2.7.2
- HeliOffshore Safety Performance Model



FLIGHT PLANNING

29. Offshore alternates - Execution

29A. Purpose

Ensuring offshore alternates are only used when OEI performance and alternative decks are guaranteed.

29B. Expectations

The aircraft operator has a documented policy on the use of offshore alternates, if applicable.

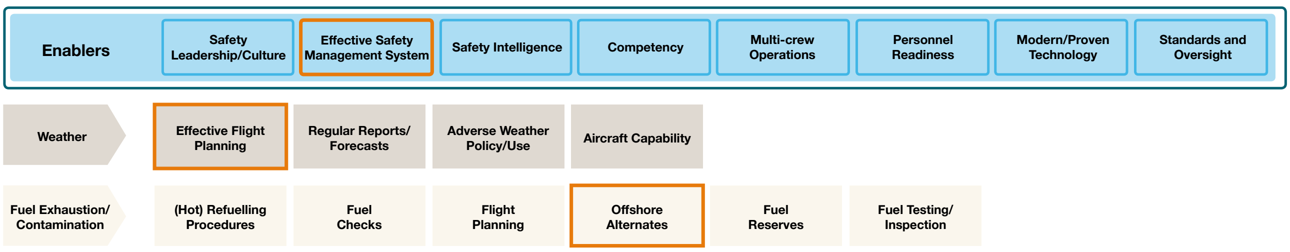
29C. Processes and practices

29C.1 Before passing the PNR, the following actions are completed:

- 29C.1.1 Confirmation that navigation to the destination and offshore alternate is assured.
- 29C.1.2 Radio contact with the destination and offshore alternate (or responsible radio operator) has been established.
- 29C.1.3 The landing forecast at the destination and offshore alternate has been obtained and confirmed to be above the required minima as listed in Table 28.1.
- 29C.1.4 The requirements for an OEI landing have been checked to ensure that they can be met.
- 29C.1.5 The availability of the offshore alternate has been guaranteed by the duty holder (rig operator for fixed installations and the owner for mobiles or vessels) until landing at the destination, or the offshore alternate, has been achieved (or until offshore shuttling has been completed).

Other references

- ICAO Annex 6 Vol 3 Chapter 2.7.2
- HeliOffshore Safety Performance Model



FLIGHT PROCEDURES

30. Flight procedures – General

30A. Purpose

Ensuring a safe flightpath with early identification of deviations and timely corrective action.

30B. Expectations

The aircraft operator has developed appropriate flight procedures.

30C. Processes and practices

30C.1 Flight procedures (SOP or Operations Manual) are used by the aircrew in the performance of their duties, referencing the FCOM if available. These procedures include cockpit procedures, use of checklists, automation policy, and crew monitoring procedures including confirmation of actions, mode settings, aircraft responses and deviation calls. The procedures are described concisely so that aircrew will recognise and act on deviations from standards in a timely manner.

30C.2 FDM or FOQA programs are used to monitor trends regarding these procedures.

30C.3 The use of CRM/TEM/ADM, crew responsibilities including pre-flight planning, adverse weather avoidance, arming of flotation gear, awareness of potential birdstrike risk, and care of passengers are defined and understood by aircrew.

Other references

- ICAO Annex 6 Vol 3 Appendix 7
- HeliOffshore Safety Performance Model

FLIGHT PROCEDURES

31. Flight procedures – Sterile cockpit

31A. Purpose

Ensuring a safe flightpath with early identification of deviations and timely corrective action.

31B. Expectations

The aircraft operator has established a sterile cockpit policy.

31C. Processes and practices

31C.1 There is a sterile cockpit policy covering, as a minimum, restrictions on unnecessary conversation, use of EFBs or PEDs, and paperwork, during flight below key altitudes, and during certain phases of flight or ground operations.

Other references

- Industry Recommended Practice
  - FAA CFR 121.542
  - EASA Part ORO.GEN.110(f)
- HeliOffshore Safety Performance Model

32. Flight procedures – Stabilised Approaches

32A. Purpose

Ensuring a safe flightpath with early identification of deviations and timely corrective action.

32B. Expectations

The aircraft operator has established stabilised approach procedures.

32C. Processes and practices

32C.1 Stabilised approach procedures are documented that define when to conduct a missed approach or abort a landing if deviation criteria for a stabilised approach are not met.

32C.2 The procedures are written with reference to the HeliOffshore Flightpath Management Recommended Practices (HO-FPM-RP-v2.0);

32C.3 Stabilised approach procedures are specific to the aircraft type or use a TC Holder issued Flight Crew Operating Manual (FCOM).

32C.4 Procedures are characterised by defined speeds, climb/descent rate, vertical flight-path and configuration, through a series of defined 'gates' as necessary.

32C.5 Stabilised approach criteria confirm that:

- 32C.5.1 The aircraft is on the correct flight path and only requires small changes in heading, attitude and power to remain on the correct flight path.
- 32C.5.2 The aircraft is in the correct landing configuration and all briefings and checklists have been conducted.
- 32C.5.3 The power setting is appropriate for the aircraft configuration, not below the manufacturer's minimum if specified in the Aircraft Flight Manual or Flight Crew Operating Manual (FCOM).
- 32C.5.4 Flight crew procedures include monitoring of the flight path and the requirement to announce deviations and subsequent actions using specified criteria.

32C.6 Unique approach procedures or abnormal conditions that require a deviation from stabilised approach criteria require a special briefing.

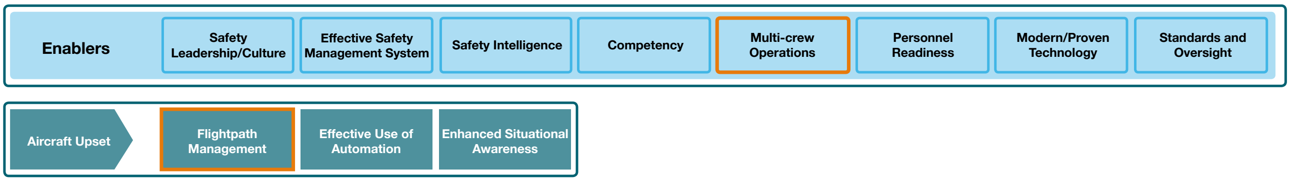
32C.7 Procedures are in place for no-fault, mandatory go-arounds if any approach not be stabilised, and pilots practice all-engine operating (AEO) go-arounds as part of their proficiency training.

32C.8 The aircraft operator uses HFDM analysis, within its SMS to assist with the identification of specific risks in the conduct of flight procedures.

FLIGHT PROCEDURES

Other references

- Industry Recommended Practice
  - ICAO PANS OPS Vol 1 (Flight Procedures)
  - ICAO Global Runway Safety Action Plan
- HeliOffshore Flightpath Management Recommended Practices (HO-FPM-RP-v2.0)
- HeliOffshore Safety Performance Model



FLIGHT PROCEDURES

33. Flight procedures – Assessment of wrong deck landing risk

33A.Purpose

Ensuring a safe flightpath with early identification of deviations and timely corrective actions.

33B.Expectations

The aircraft operator has established a procedure for flight crew to confirm the location of offshore destinations.

33C. Processes and practices

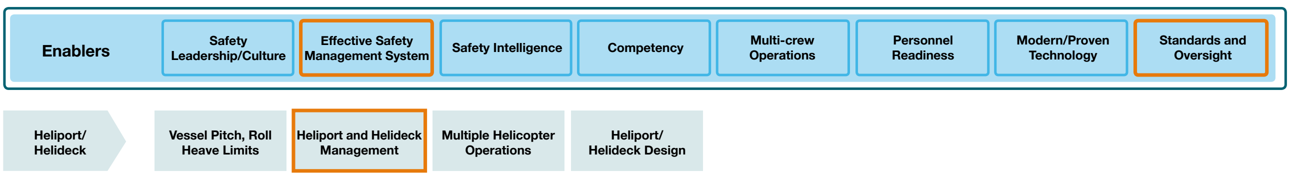
33C.1 There is a process to identify the relative risk (high, medium, or low) of a wrong deck landing at a particular destination or vessel during flight planning. This process considers factors such as the location of mobile installations and vessels, proximity of adjacent decks, physical similarity of adjacent installations or vessels, similarity in naming conventions, etc.

33C.2 Procedures are in place to review this risk during all pre-flight briefings and discuss in pre-landing briefings (unless the risk in that area is continuously low).

33C.3 There are procedures in the operations manual/normal checklists for verification of the destination position and facility name when approaching all vessels and installations.

Other references

- Industry Recommended Practice
  - CAP 437
  - UK Health and Safety Executive Report OTO 2000/067 Review Of Wrong Helideck Landings, Status Lights and Signalling Lamps
- HeliOffshore Wrong Deck Landings Research and Investigation Report
- BARSOHO Section 3.3 - Assessment of Wrong Deck Landing Risk
- HeliOffshore Safety Performance Model



FLIGHT PROCEDURES

34. Pre-flight and post-flight procedures

34A. Purpose

Ensuring the aircraft is correctly prepared for flight and any defects are properly recorded.

34B. Expectations

The aircraft operator has established procedures for the use of the aircraft technical log and MEL.

34C. Processes and practices

34C.1 Flight Crew responsibilities for the use of the MEL and ATL are clearly defined.

34C.2 The aircraft is prohibited from departure with a defect that has not been processed in accordance with the MEL.

34C.3 Flight crews record all defects after every flight.

34C.4 A protocol is in place for flight crew to debrief maintenance personnel post-flight.

Other references

- ICAO Annex 6 Vol 3 2.5.4
- HeliOffshore Safety Performance Model

FLIGHT PROCEDURES

35. Flight following

35A. Purpose

Ensuring timely alerting and location identification to aid SAR services.

35B. Expectations

The aircraft operator has established flight following procedures.

35C. Processes and practices

35C.1 A satellite flight following system is installed that records aircraft position when the aircraft is outside an effective Air Traffic Control (ATC) surveillance service (Radar, Voice or Automatic Dependent Surveillance – Broadcast (ADS-B)).

35C.2 Satellite position reporting frequency is a maximum interval of two minutes

35C.3 When satellite tracking is in use, the aircraft's position is shown on a monitor which is in direct view of trained operations personnel who keep the aircraft under constant surveillance during the whole flight.

35C.4 When the aircraft is not under ATC surveillance, Contractor's flight following personnel are able to initiate the Emergency Response Plan if required. There is a reliable means of direct communication available between the aircraft and flight follower throughout the flight. Activation of an Emergency Response Plan will occur in event of distress or loss of communications.

35C.5 When the aircraft is not under ATC surveillance and the satellite flight following system is inoperative, procedures are in place for regular "ops normal" calls at least every 15 minutes. Such calls include heading, speed, position and are recorded in a log.

35C.6 Job descriptions are documented that include the roles and responsibilities for flight following positions, the associated training requirements, and the process by which their ongoing competencies are assured. The documented training requirements adequately address management of the flight following function in both normal and emergency operations.

Other references

- Industry Recommended Practice
  - ICAO Global Aeronautical Distress & Safety System (GADSS)
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

36. Perforation operations

36A. Purpose:

Ensuring that helicopter operations do not compromise the safety of perforating operations.

36B. Expectations:

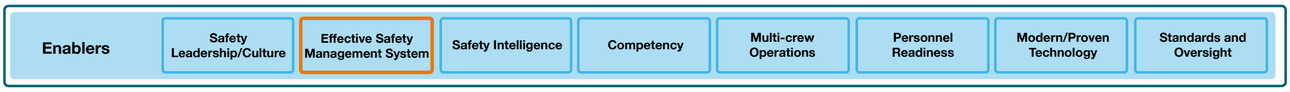
Helicopter operations are prohibited during perforating operations.

36C. Processes and practices

36C.1 The aircraft operator respects the 500m safety zone and radio silence when perforating operations are in progress.

Other references

- HeliOffshore Safety Performance Model



FLIGHT PROCEDURES

37. Birdstrike avoidance

37A. Purpose:

Ensuring effective bird control measures are in place to minimise bird strikes.

37B. Expectations:

The aircraft operator has established procedures to minimise the risk of birdstrikes.

37C. Processes and practices

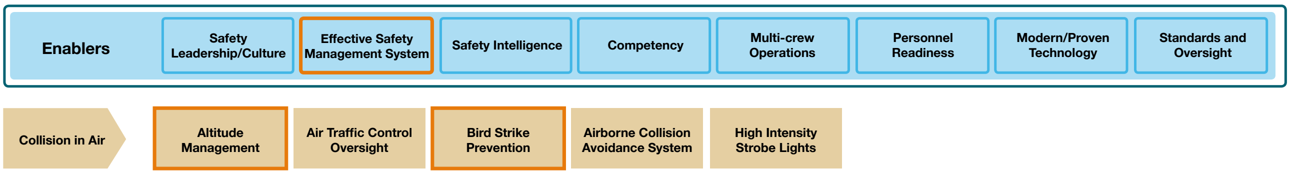
37C.1 Aircraft routing considers bird sanctuaries, known nesting areas, and migratory bird paths as far as practical.

37C.2 In area where bird strike risk is identified defined, speed limits according altitude are be documented.

37C.3 Flight crews are aware of bird avoidance techniques.

Other references

- HSAC-RP 2010-3 Rev 1
- HeliOffshore Safety Performance Model



FLIGHT PROCEDURES

38. Cabin area cargo

38A. Purpose:

Ensuring the accurate and safe aircraft loading within approved limits.

38B. Expectations:

Cabin area cargo is correctly secured.

38C. Processes and practices

38C.1 Cargo carried inside the passenger compartment is adequately secured and does not obstruct normal or emergency exits;

38C.2 Cargo carried in the cabin is subject to approval by the Company.

Other references

- ICAO Annex 6 Vol 3 Chapter 2.3.e
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

39. Flight crew training – Records and programmes

39A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

39B. Expectations:

The aircraft operator maintains training documentation for flight crew.

39C. Processes and practices

39C.1 Comprehensive training documentation is maintained, including details of training programmes and the required training frequency.

Other references

- ICAO Annex 6 Vol 3 Chapter 7.4.2.4
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

FLIGHT CREW TRAINING

40. Flight crew training – Reorientation flight after absence

40A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

40B. Expectations:

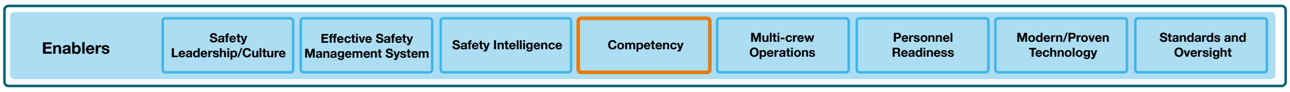
The aircraft operator has a documented training programme for flight crew

40C. Processes and practices

40C.1 Pilots fly a 'reorientation' flight after an absence from flying for a period of 45 days or longer, to enable them to be refamiliarised with the operational environment. The flight may be conducted on a revenue flight or in an Level C or Level D FFS (or type -specific Type III, IV or V devices as described in ICAO Doc 9625 Vol 2) with an instructor, line training captain, or an experienced line pilot approved by the base chief pilot monitoring the flight.

Other references

- ICAO Annex 6 Vol Chapter 7.4.1
- HeliOffshore Safety Performance Model



FLIGHT CREW TRAINING

41. Flight crew training – Recurrent training and Maintenance Check Flights

41A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

41B. Expectations:

The aircraft operator has established a recurrent training programme for flight crews.

41C. Processes and practices

41C.1 All pilots receive annual recurrent training to the standards of the NAA, and flight checks every six months. These flight checks include an annual instrument rating proficiency check/renewal (where applicable), a six-monthly OPC which includes emergency drills, and an annual LPC.

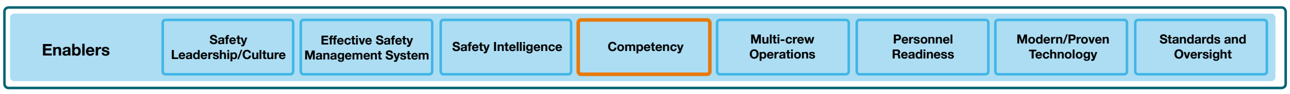
41C.2 Where distinct climatic seasons exist, training is related to seasonal changes.

41C.3 Before being scheduled for flight duties in a new location, all crewmembers undergo at least a documented orientation line check, including a review of local procedures and policies.

41C.4 Before being scheduled for Maintenance Check Flights crew receive appropriate training, see 690-5 - Engineering, Section 18 – Maintenance Check Flights.

Other references

- ICAO Annex 6 Vol 3 Chapter 7.3.1
- HeliOffshore Safety Performance Model



42. Flight crew training – 90-day recency

42A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

42B. Expectations:

The aircraft operator has established a recency requirement for flight crews.

42C. Processes and practices

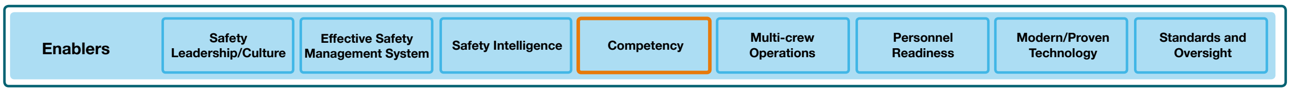
42C.1 Pilots fly a total of 50 hours in the preceding 90 days to maintain recency. Hours in a Level C or Level D FFS (or type -specific Type III, IV or V devices as described in ICAO Doc 9625 Vol 2) may be included in this total. If the requirement is not met, a line check (or LPC/OPC) is carried out by an LTC (or TRE/TRI) – Note 1.

42C.2 In cases where 90-day minimum requirements cannot be met due to low contracted flight hours, a risk assessment with appropriate mitigation is presented to the Company.

Note 1: A line check (which may be a normal revenue flight) is conducted by a line training captain at least annually as part of the recurrent training program. It can also be used for other purposes, such as resetting currency after a time of absence.

Other references

- ICAO Annex 6 Vol 3 Chapter 7.3.1
- HeliOffshore Safety Performance Model



FLIGHT CREW TRAINING

43. Use of Flight Simulation Training Devices – General

43A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

43B. Expectations:

Flight Crews conduct training in suitable FSTDs.

43C. Processes and practices

43C.1 Flight crews are to seated at their normal flight control stations to receive credit for simulator time.

43C.2 FSTDs include landing area visual simulations that are representative of those being used by the operator, including for example, helideck visuals with markings representative of those being used in daily operations.

43C.3 Instructors can communicate effectively with the trainees.

43C.4 Where differences exist between the aircraft and training devices (e.g., equipment fit, software version), a gap analysis is conducted, and suitable mitigations applied.

Other references

- ICAO Doc 9625 Vol 2
- HeliOffshore Safety Performance Model

FLIGHT CREW TRAINING

44. Use of Flight Simulation Training Devices – Devices

44A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

44B. Expectations:

Flight Crews conduct training in suitable FSTDs every 6 months

44C. Processes and practices

44C.1 Aircrew undergo training in an approved FSTD at a frequency of at least every 6 months. Level C or Level D FFS (or type -specific Type III, IV or V devices as described in ICAO Doc 9625 Vol 2) are used where available for the type.

44C.2 Where an FFS or ICAO 9625 equivalent is not available for the aircraft type or where the configuration of the FFS is not sufficiently representative of the contracted commercial aircraft, FTDs may be used in accordance with the following guidelines:

- 44C.2.1 FTD Level 3 or equivalent for medium rotorcraft above 3175 kg (7,000 lb).
- 44C.2.2 FTD Level 2 for small rotorcraft with a maximum weight of 3175 kg (7,000 lb) or less and certified with nine or less passenger seats.
- 44C.2.3 The FSTD training syllabus incorporates LOFT scenarios and Threat and Error Management (TEM) training, including those emergencies that cannot be practised in the air.

Other references

- ICAO Doc 9625 Vol 2
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

45. Pilot aircraft conversion syllabus and minimum hours

45A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skillS, and experience.

45B. Expectations:

The aircraft operator has a documented type conversion syllabus.

45C. Processes and practices

45C.1 Commanders have at least 100 hours on type and co-pilots have at least 50 hours on type.

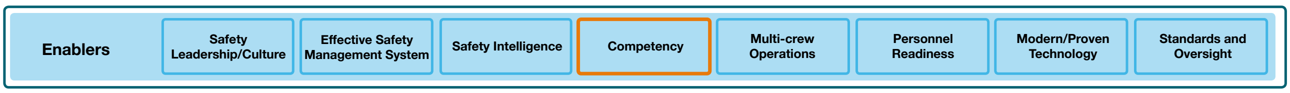
45C.2 When new types are introduced into service, or when changing to alternate types, operations are permitted with fewer hours, provided the crews have followed an integrated structured training programme for the initial type rating.

45C.3 The programme is approved by the NAA and is run either by the OEM or by an approved and licenced ATO; if applicable, it includes time spent in an FSTD.

45C.4 The hours to be achieved during type conversion or an initial type rating (including any initial conversion training) is agreed with the company.

Other references

- ICAO Annex 6 Vol 3 Chapter 7.3
- HeliOffshore Safety Performance Model



46. Other training - Crew Resource Management

46A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

46B. Expectations:

The aircraft operator has a Crew Resource Management (CRM) training programme in place.

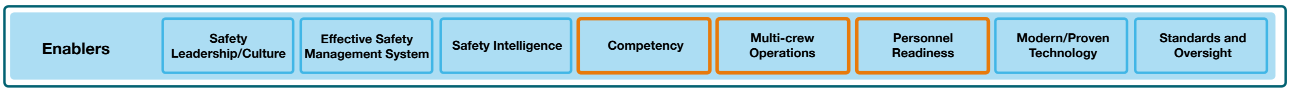
46C. Processes and practices

46C.1 A CRM training programme is in place, with initial and annual refresher training.

46C.2 The annual CRM refresher is carried out either as ground instruction or as part of the annual line check.

Other references

- Industry recommended practice
  - EASA ORO.FC.115 Crew resource management (CRM) training
  - FAA AC 120-51E - Crew Resource Management Training;
  - ICAO Doc 9683 – Human Factors Training Manual
- HeliOffshore Safety Performance Model



OTHER TRAINING

47. Other training – Dangerous goods training

47A. Purpose:

Ensuring only appropriately packaged and documented DG are carried in the appropriate aircraft hold locations.

47B. Expectations:

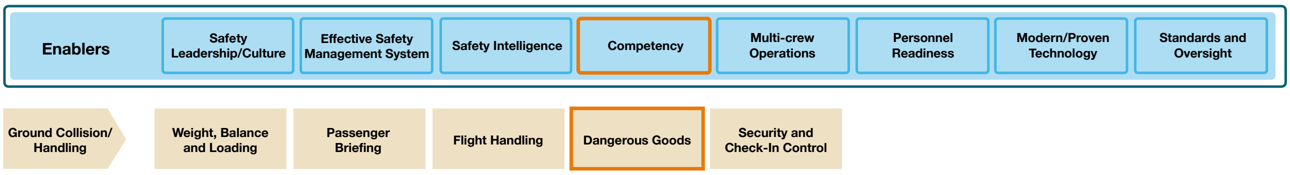
The aircraft operator has a Dangerous Goods Training programme in place

47C. Processes and practices

47C.1 Dangerous Goods Awareness training, compliant with local regulatory requirements, is in place for all pilots at least every 2 years to ensure that they are aware of the requirements, including relevant legislation, limitations and documentation, for the carriage of hazardous materials.

Other references

- ICAO Annex 18
- IATA Dangerous Goods Regulations
- HeliOffshore Safety Performance Model



ROLE SPECIFIC TRAINING

48. Role specific training – Helicopter Underwater Escape Training (HUET)

48A. Purpose:

Ensuring the occupants can escape in the event of a capsize or submersion.

48B. Expectations:

Flight Crew are HUET trained.

48C. Processes and practices

48C.1 Flight crew complete a HUET course to a recognised standard (e.g., OPITO) that includes the use of a Modular Egress Training Simulator (METS) at least every four years, unless local regulation requires greater frequency.

48C.2 In HUET devices the emergency exit types and sizes are representative of the aircraft flown in offshore operations.

48C.3 All HUET trained personnel or their companies maintain a documented record of the training completed.

Other references

- OPITO Training Standard - Helicopter Underwater Escape Training (HUET) with Compressed Air Emergency Breathing System (CA-EBS)
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

49. Role specific training – Emergency Breathing Systems (EBS)

49A. Purpose:

Ensuring the occupants can escape in the event of a capsize or submersion.

49B. Expectations:

Flight Crew are trained on the use of CA-EBS.

49C. Processes and practices

49C.1 HUET includes training in the use of the CA-EBS to ensure user proficiency at least every four years, unless local regulation requires greater frequency.

49C.2 The CA-EBS is compatible with the lifejacket (and immersion suit, if required).

49C.3 An appropriate Maintenance Program (including pre-flight inspection) is in place for these items.

Other references

- OPITO Training Standard - Helicopter Underwater Escape Training (HUET) with Compressed Air Emergency Breathing System (CA-EBS)
- EN4856:2018
- ETSO 2C519
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

ROLE SPECIFIC TRAINING

50. Role specific training – Helideck

50A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

50B. Expectations:

A programme for annual helideck training of flight crew is in place.

50C. Processes and practices

50C.1 An annual training programme includes as a minimum:

- 50C.1.1 Information on helideck design and markings, including the chevron, TD/PM, D value and t value, LOS, 1:5 falling gradient and Helideck Monitoring System (HMS).
- 50C.1.2 The significance of the alignment of the H with regard to the OFS.
- 50C.1.3 The correct approach path.
- 50C.1.4 Correct use of the TD/PM circle and relative positioning to ensure clearance from obstacles and enable safe passenger movement on deck.

50C.2 In addition, there is a written syllabus for training of aircrew engaged in flights to small and medium size vessels while underway which includes:

- 50C.2.1 Differences in the location of the helideck (bow/stern/midships) and the effect this has on helideck movement
- 50C.2.2 Differences in approach/departure procedures for vessels under way and the effect this has on relative wind and turbulence at the various helideck positions

Other references

- CAP 437
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	**Competency**	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

51. Role specific training – Control guarding

51A. Purpose:

To prevent injuries following an accidental flight controls input while rotors running on the ground.

51B. Expectations:

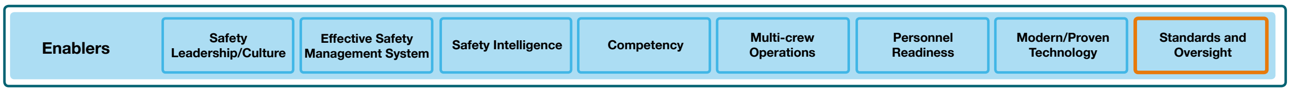
Flight controls are guarded during embarkation/disembarkation.

51C. Processes and practices

51C.1 When loading or unloading passengers from helicopters with rotors running, a member of the flight crew remains guarding the controls and only performs cockpit duties related to the identification of external hazards and passenger movement around the aircraft.

Other references

- HeliOffshore Safety Performance Model



International Association of Oil & Gas Producers

IOGP REPORT 690-3

Support Operations

PASSENGER HANDLING

1. Passenger check-in

1A. Purpose

Ensuring manifests are accurate, and that passengers are appropriately escorted and seated.

1B. Expectations

A passenger check in process is established.

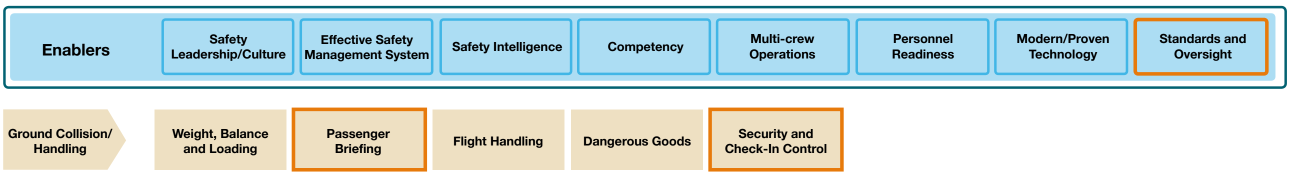
1C. Processes and practices

1C.1 A process is in place to verify the identity of passengers prior to boarding, ensure they meet safety training, medical or other currency requirements, search for prohibited items (prohibited either in-flight or at the destination) and deny boarding to passengers who are disruptive.

1C.2 The aircraft operator has a process to conduct inbound, onshore security checks in accordance with any local regulations or company contractual requirements.

Other references

- ICAO Annex 9 App2
- HeliOffshore Safety Performance Model



PASSENGER HANDLING

2. Onshore passenger holding areas

2A. Purpose

Ensuring the physical design of helidecks and heliport, their markings, lighting, emergency cover, and all ancillary systems are suitable for safe operations..

2B. Expectations

A suitable onshore passenger holding area is provided.

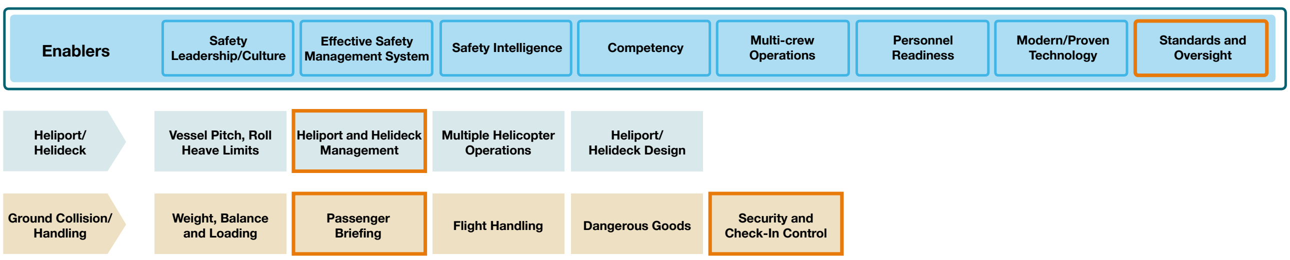
2C. Processes and practices

2C.1 The onshore passenger holding area includes:

- 2C.1.1 A designated area for the passenger and freight check-in process and security checks
- 2C.1.2 A designated area for the passenger and freight check-in process, i.e., for weighing and manifesting all outgoing passengers, baggage, and freight on calibrated scales
- 2C.1.3 A dedicated and secure waiting area for outbound passengers that separates them from incoming passengers
- 2C.1.4 A designated area for the display of written and graphic information related to aircraft safety and local procedures
- 2C.1.5 A viewing room for video safety briefings (which may be the same area as that used for the display of information)
- 2C.1.6 If applicable, a changing room for the donning of immersion suits (which may also be the same area as the video room)
- 2C.1.7 A baggage collection area for incoming passengers

Other references

- ICAO Annex 6 Vol 3 Chapter 2.1
- HeliOffshore Safety Performance Model



PASSENGER HANDLING

3. Alcohol and drugs

3A. Purpose

Ensuring passengers are qualified and approved to travel, and are free of prohibited items.

3B. Expectations

Passengers are fit to travel.

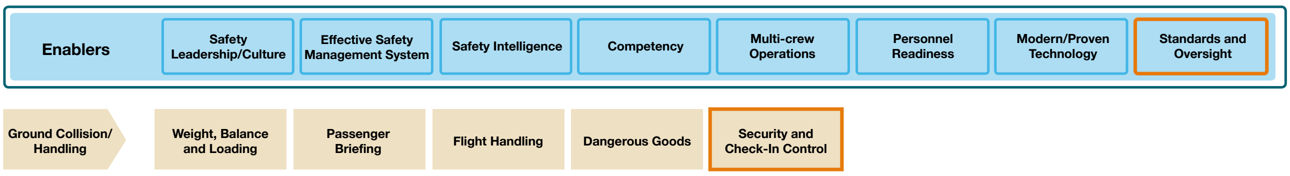
3C. Processes and Practices

3C.1 Personnel under the influence of alcohol or non-prescription drugs are prohibited from boarding any aircraft.

3C.2 Check-in and Security staff are trained to recognise the signs of substance abuse and alert their management for appropriate action to remove the passenger from the flight.

Other references

- ICAO Annex 9 Chapter 6.44, 6.45
- ICAO Doc 10117 (Manual on the Legal Aspects of Unruly and Disruptive Passengers)
- HeliOffshore Safety Performance Model



PASSENGER HANDLING

4. Passenger and baggage weights

4A. Purpose

Ensuring the accurate and safe aircraft loading within approved limits.

4B. Expectations

Passenger and baggage weights are accurate.

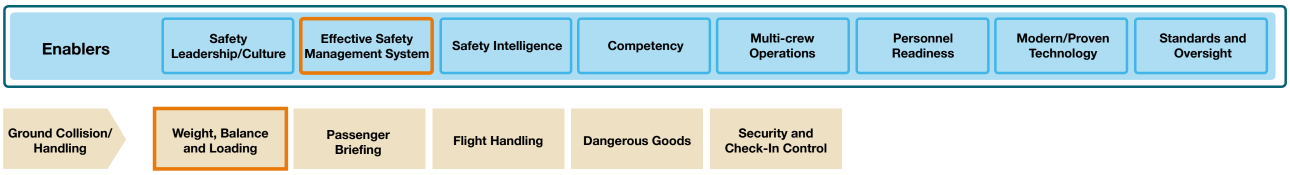
4C. Processes and practices

4C.1 Actual weights are used for passengers and all baggage

4C.2 Weighing scales are calibrated as per manufacturers recommended intervals. .

Other references

- ICAO Annex 6 Vol 3 Chapter 2.3
- HeliOffshore Safety Performance Model



5. Passenger handling

5A. Purpose

Ensuring passengers are seated in appropriate positions to facilitate escape.

5B. Expectations

Passengers are allocated appropriate seats.

5C. Processes and practices

5C.1 No passenger is seated more than one seat from a push out window or emergency exit.

5C.2 A means is in place to identify passengers that will be required to be seated next to appropriate exits, as described in the "Step Change for Safety XBR process"

5C.3 Ground Handling and Helideck staff involved in passenger seat attribution/verification during boarding phase are aware of the XBR process

Other references

- Step Change in Safety: https://www.stepchangeinsafety.net/workgroups/helicopter-safety/
- EASA AMC1 SPA.HOFO.165(h) Additional procedures and equipment for operations in a hostile environment - Emergency Exits and Escape Hatches
- RAF IAM (Report No.528) and University of Loughborough Report on body size for the Joint Aviation Authorities (JAA) in 2001
- UK CAA CAP 562 Civil Aircraft Airworthiness Information and Procedures.
- HeliOffshore Safety Performance Model

PASSENGER HANDLING

6. Passenger - Personal Protective Equipment

6A. Purpose

Ensuring passengers are suitably dressed for the environment.

6B. Expectations

Passengers have suitable Personal Protective Equipment (PPE) for the environment.

6C. Processes and practices

6C.1 All passengers are issued constant wear lifejackets meeting ETSO-2C504 with Personal Locator Beacons (PLBs) and Compressed Air Emergency Breathing Systems (CA EBS).

6C.1.1 PLBs transmit on 121.5Mhz and/or AIS.

6C.1.2 PLBs are assessed for compatibility the aircraft ELT and Crew PLBs.

6C.2 Immersion suits are worn when required by regulation or by contract, meet ETSO-2C502 or ETSO-2C503, or national aviation authority approved TSO, and which have been tested for compatibility with the lifejacket

6C.3 Information is displayed on passenger clothing requirements, including the type and number of layers required under immersion suits, if applicable to the operating region.

6C.4 Hearing protection is provided for passengers together with instructions for its use.

Other references

- ETSO 2C502
- ETSO 2C503
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

PASSENGER HANDLING

7. Passenger briefing

7A. Purpose

Ensuring passengers have the necessary knowledge to safely board, disembark, and evacuate the aircraft.

7B. Expectations

Passengers are adequately briefed before the flight.

7C. Processes and Practices

7C.1 Passengers are briefed on emergency procedures and other safety matters prior to every flight. A video briefing is the preferred delivery method; this may be supplemented or replaced by an aircrew briefing.

7C.2 Passenger briefings are tailored to the specific design features and equipment of the aircraft to be used. If there are minor differences in configuration between the briefing and aircraft to be used, a supplementary briefing on the aircraft or using illustrations of the differences is provided before flight. Differences are minor if they are easy to understand and identify on the aircraft, do not introduce risk of injury if misused and have no adverse effect on survivability.

7C.3 Briefings are valid for 24 hours, after which a fresh briefing is delivered.

7C.4 In locations where some passengers do not fully understand the language used for the briefing, the video contains subtitles, or there is a video in the local language, or a translator is provided if necessary.

7C.5 There is a safety briefing card for each passenger seat containing information on safety equipment and emergency procedures. The cards use graphics with international symbols, or have information added in the local language(s) if required.

7C.6 The passenger briefing includes:

- 7C.6.1 A general description of the aircraft and the danger areas around main and tail rotors, including safe and unsafe directions of approach and the danger of blade sail during rotor start or shutdown.
- 7C.6.2 How survival suits are to be worn, if required, including use of hoods and gloves.
- 7C.6.3 Procedures for boarding and exiting the aircraft. Passengers are required to remain seated until the flight/ground crew or other designated personnel open the doors and instruct them to disembark.
- 7C.6.4 Proper storage of hand carried items.
- 7C.6.5 Instructions that smoking and the use of electronic cigarettes are prohibited at all times in aircraft, or on the aircraft movement area.
- 7C.6.6 Instructions that seat belts and shoulder harnesses are required to be worn at all times, other than when embarking/disembarking.

PASSENGER HANDLING

7C.6.7 Instructions on the use of personal electronic devices, if permitted.

7C.6.8 The location and operation of doors, emergency exits, emergency and lifesaving equipment such as fire extinguishers, first aid kits, life jackets, life rafts, survival gear, and emergency radio equipment (ELT and EPIRBs).

7C.6.9 Actions to be taken in the event of emergencies, including the brace position.

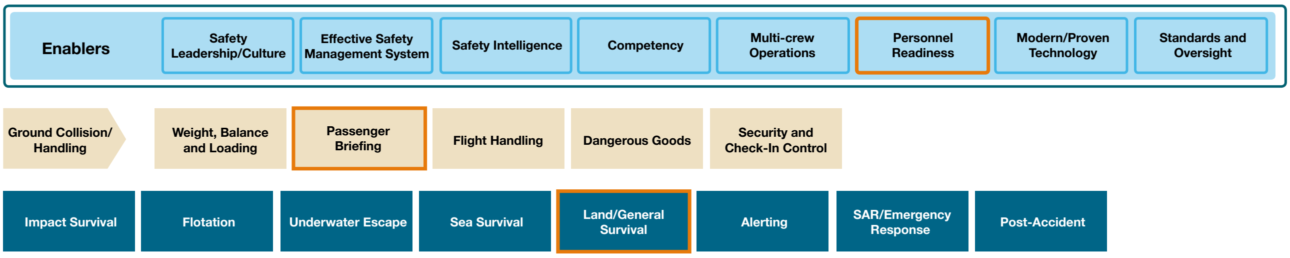
7C.6.10 Procedures for evacuating an aircraft in the event of an emergency landing on the water or ditching, including the use of reference points for orientation, reminders to not inflate life jackets until outside the helicopter and not to disembark the aircraft while the rotors are turning.

7C.6.11 The means of communication between crew and passengers.

7C.6.12 The location and review of passenger briefing card.

Other references

- ICAO Annex 6 Vol 3 Chapters 2.2.11
- ICAO Doc 10086
- HeliOffshore Safety Performance Model



PASSENGER HANDLING

8. Cargo - Weighing and documentation

8A. Purpose

Ensuring the accurate and safe aircraft loading within approved limits.

8B. Expectations

Cargo is correctly weighed and recorded in the manifest.

8C. Processes and practices

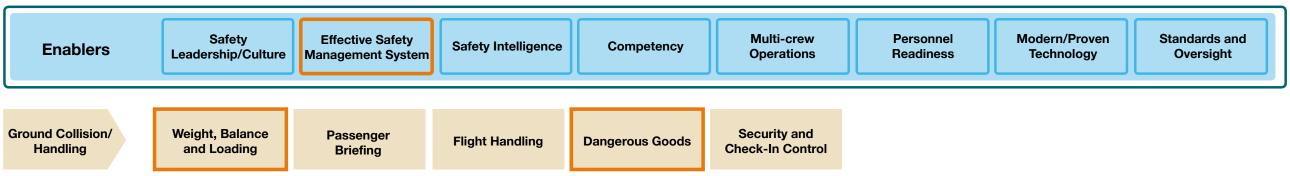
8C.1 Each piece of cargo offered for transport by air is weighed separately and recorded in the manifest.

8C.2 The contents of each piece of cargo is verified against the manifest by its packing list or by visual inspection

8C.3 Weighing scales are calibrated as per manufacturers recommended intervals. .

Other references

- ICAO Annex 6 Vol 3 Chapter 2.3
- HeliOffshore Safety Performance Model



PASSENGER HANDLING

9. Cargo – Dangerous Goods

9A. Purpose

Ensuring only appropriately packaged and documented Dangerous Goods are carried in the appropriate aircraft hold locations.

9B. Expectations

The aircraft operator has an appropriate Dangerous Goods programme in place.

9C. Processes and practices

9C.1 Where the carriage of Dangerous Goods by the aircraft operator is authorised, procedures comply with the ICAO Technical Instructions or the IATA Dangerous Goods Regulations and with local regulatory requirements. These include the training of relevant ground staff and the provision of the correct documentation for all DG shipments.

9C.2 Where dangerous goods are not carried, Dangerous Goods Awareness training, compliant with local regulatory requirements, is in place for all relevant ground staff at least every 2 years to prevent the carriage of undeclared dangerous goods that may be found in passengers' baggage and consigned freight.

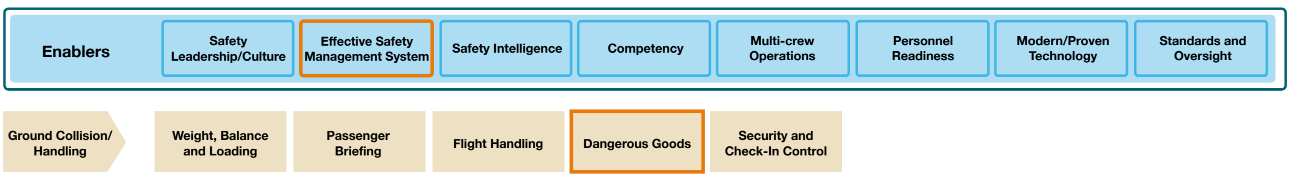
9C.3 Provisions for Dangerous Goods carried by passengers or crew. Limitations for Portable Electronic Devices (PED), batteries, including lithium metal or lithium ion cells or batteries, and specified ignition sources are in place. This includes spare or loose batteries.

9C.4 At a minimum, these cover:

- 9C.4.1 Check-In procedures, including passenger declarations
- 9C.4.2 Forbidding charging PED in-flight
- 9C.4.3 Mitigation measures – Flame/Smoke Bag etc.
- 9C.4.4 E-Cigarettes (if permitted) must have batteries removed
- 9C.4.5 Checked in PED must be switched off
- 9C.4.6 No transport of loose lithium batteries

Other references

- IATA Dangerous Goods Regulations
- HeliOffshore Safety Performance Model



PASSENGER HANDLING

10. Manifests

10A. Purpose

Ensuring manifests are accurate, and that passengers are appropriately escorted and seated.

10B. Expectations

A passenger and cargo manifest is created for each flight.

10C. Processes and practices

10C.1 The manifest is developed from the published flight schedule containing the following information, at a minimum:

- 10C.1.1 Aircraft registration
- 10C.1.2 Flight number (if applicable)
- 10C.1.3 Passenger name
- 10C.1.4 Passenger company affiliation
- 10C.1.5 Passenger actual weight
- 10C.1.6 Passenger baggage weight
- 10C.1.7 Cargo weight

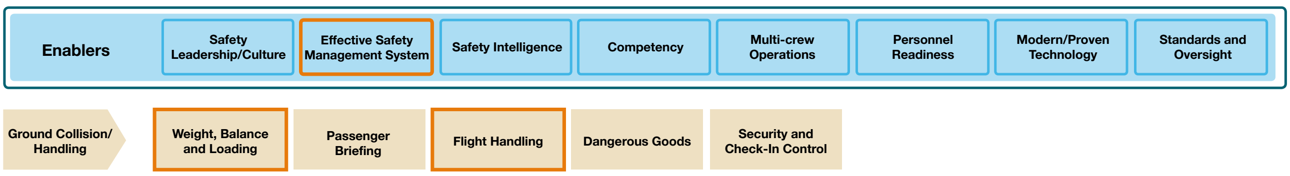
10C.2 The manifest may be hand-written or generated from a computer-based manifesting system. Where a hand-written manifest is used, a copy is left with a responsible person on the ground who retains it until the flight is completed.

10C.3 Where a flight involves multiple sectors, a single consolidated manifest is generated for each sector and provided to the pilot.

10C.4 Any last-minute changes are incorporated, and the manifest is revised accordingly.

Other references

- ICAO Annex 6 Vol 3 Chapter 2.3
- ICAO Annex 9 Chapter 4.14, App 2, App 3.
- HeliOffshore Safety Performance Model



PASSENGER TRAINING

11. Passenger Training – Helicopter Underwater Escape Training

11A. Purpose

Ensuring the occupants can escape in the event of a capsize or submersion.

11B. Expectations

Passengers are HUET trained.

11C. Processes and practices

11C.1 Passengers complete a HUET course to a recognised standard (e.g., OPITO) that includes the use of a Modular Egress Training Simulator (METS) at least every four years, unless local regulation requires greater frequency.

11C.2 This training is completed in conjunction with wet dingy drills using emergency equipment similar to that installed on the aircraft.

11C.3 In HUET METS the emergency exit types and sizes are representative of the aircraft flown in offshore operations.

11C.4 HUET trained personnel or their companies maintain a documented record of the training completed.

Other references

- OPITO Training Standard - Helicopter Underwater Escape Training (HUET) with Compressed Air Emergency Breathing System (CA-EBS)
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

Note: 'Company' is responsible for ensuring that passengers have undergone valid training and have the necessary HUET and CA-A EBS qualifications. For more on 'Responsible Party', consult the Introduction section of this Report.

PASSENGER TRAINING

12. Passenger Training – Compressed Air Emergency Breathing System

12A. Purpose

Ensuring the occupants can escape in the event of a capsize or submersion.

12B. Expectations

Passengers are trained on the use of Compressed Air - Emergency Breathing System (CA-EBS)

12C. Processes and practices

12C.1 Passenger training in the use of the CA-EBS to ensure user proficiency is completed every 4 years.

12C.2 The CA-EBS is compatible with the lifejacket (and immersion suit, if required).

12C.3 An appropriate Maintenance Program (including pre-flight inspection) is in place for these items.

Other references

- OPITO Training Standard - Helicopter Underwater Escape Training (HUET) with Compressed Air Emergency Breathing System (CA-EBS)
- EN4856: 2018
- ETSO 2C519
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

Note: 'Company' is responsible for ensuring that passengers have undergone valid training and have the necessary HUET and CA EBS qualifications. For more on 'Responsible Party', consult the Introduction section of this Report.

HELIDECK

13. Helideck – Management General

13A. Purpose

Ensuring the physical design of helidecks and heliport, their markings, lighting, emergency cover, and all ancillary systems are suitable for safe operations.

13B. Expectations

Separation is maintained between inbound and outbound passengers and cargo.

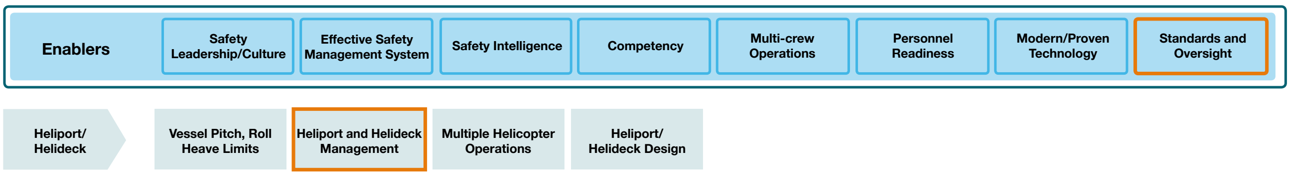
13C. Processes and practices

13C.1 Helipads, heliports and offshore helidecks are clear of all cargo and passengers that are being offloaded prior to passengers or cargo coming onto the helideck/heliport to board the helicopter.

13C.2 Cargo is only be left on a helideck if formalised procedures, which include instructions and provisions for securing the cargo, are established in writing and followed. The instructions describe how to place the cargo without infringing on obstruction free areas.

Other references

- HSAC Helideck Recommended Practice – RP163 2nd Edition
- UK CAA CAP 437;
- HeliOffshore Safety Performance Model



HELIDECK

14. Helideck – Reporting

14A. Purpose

Ensure flight crew receive accurate actual and forecast weather data to make sound planning decisions.

14B. Expectations

The aircraft operator is provided with weather and deck condition reports from offshore locations.

14C. Processes and practices

14C.1 Personnel trained and certified as aviation weather observers, or Automated Weather Observing System (AWOS), are used to provide weather information.

14C.2 The reporting equipment provides the following information:

- 14C.2.1 wind speed and direction
- 14C.2.2 barometric pressure
- 14C.2.3 temperature
- 14C.2.4 visibility
- 14C.2.5 cloud base
- 14C.2.6 sea state

14C.3 For floating facilities, helideck motion data.

14C.4 All reporting equipment must be maintained and calibrated to a defined schedule and the results recorded in a register.

Other references

- CAP 437
- ICAO Annex 6 Vol 3 Chapter 2.5
- BARSOHO
- HSAC Helideck Recommended Practice – RP163 2nd Edition
- HeliOffshore Safety Performance Model

HELIDECK

15. Crane operations

15A. Purpose

Ensuring that helidecks are prepared for safe helicopter operations.

15B. Expectations

Helicopters operations are prohibited on the helideck unless cranes are shut down.

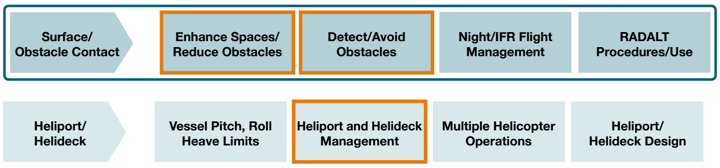
15C. Processes and Practices

15C.1 The company has established procedures to prohibit helideck operations when cranes are active.

15C.2 Procedures are in place to communicate the crane situation to helicopter crews.

Other references

- CAP 437 Chapter 6.24
- HSAC Helideck Recommended Practice – RP163 2nd Edition
- HSAC Helideck Recommended Practice – RP81 BARSOHO
- HSAC Helideck Recommended Practices
- HeliOffshore Safety Performance Model



HELIDECK

16. Helideck - Staff training

16A. Purpose

Ensuring that helideck staff are appropriately trained.

16B. Expectations

Helideck staff are trained in accordance with OPITO standards or equivalent.

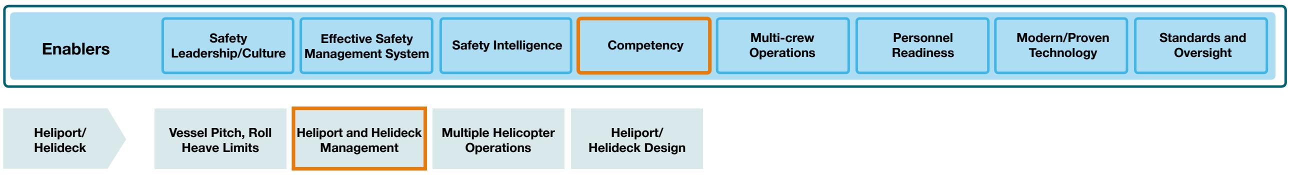
16C. Processes and practices

16C.1 Offshore installations have an HLO available for all helicopter movements with relevant duties and responsibilities clearly outlined in an up-to-date HLO Manual.

16C.2 HLO and Helideck Assistants (HDA) undergo initial and recurrent training every two years in accordance with OPITO standards (or an acceptable alternative standard).

Other references

- OPITO Training Standard - Helideck Emergency Response Team Leader
- BARSOHO
- HSAC Helideck Recommended Practice – RP163 2nd Edition
- HeliOffshore Safety Performance Model



HELIDECK

17. Helideck - Passenger Control

17A. Purpose

Ensuring manifests are accurate, and that passengers are appropriately escorted and seated.

17B. Expectations

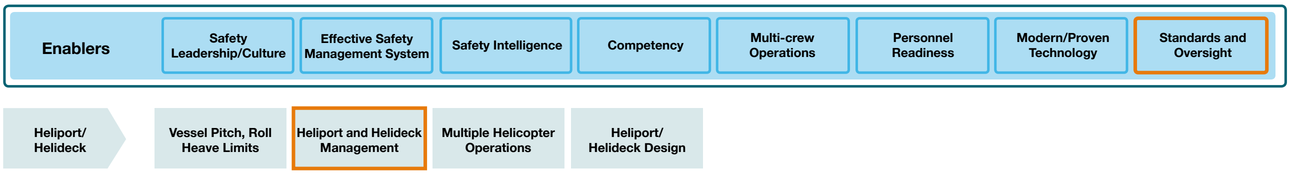
Passengers are properly controlled on helidecks.

17C. Processes and practices

17C.1 An HLO and HDAs are used to control passenger movement on helidecks.

Other references

- HSAC Helideck Recommended Practice 2016-3 9.1.4UK CAA CAP 437
- HeliOffshore Safety Performance Model



HELIDECK

18. Rotors Running Refuelling

18A. Purpose

Ensuring hot refuelling is completed safely.

18B. Expectations

The aircraft operator has established a procedure for Rotors Running Refuelling (RRRF) , if applicable.

18C. Processes and practices

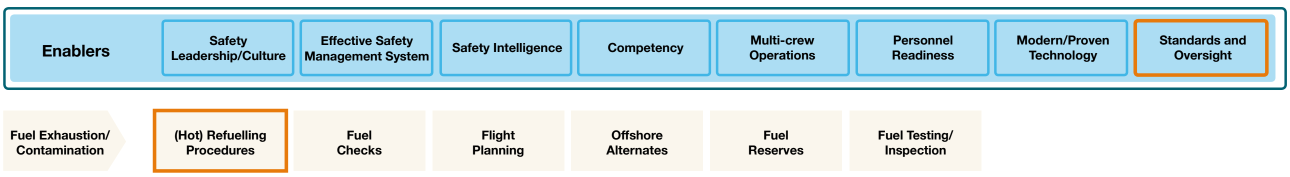
18C.1 The aircraft operator has documented procedures for the conduct of RRRF, where this is permitted, and RRRF has been subject to a risk assessment.

18C.2 The procedures include the following in addition to any local regulatory requirements:

- 18C.2.1 A pilot is at the controls at all times.
- 18C.2.2 Passengers normally disembark prior to refuelling; however, if, for safety reasons, the Commander decides to refuel with the passengers on board, the passengers are informed of this decision and the actions to take in the event of a fire.
- 18C.2.3 Firefighting capability is available and manned.
- 18C.2.4 A person is stationed at the helicopter door to communicate with the passengers if they remain on board, and assist evacuation in the event of a fire. This person has visual contact with the refuelling operator.
- 18C.2.5 All seat belts are unfastened, the main exit door away from the side where refuelling is occurring is opened unless otherwise specified by the RFM.
- 18C.2.6 HF radios is not used during refuelling, and the radar is switched to Standby.
- 18C.2.7 The aircraft, fuel supply and fuel hose are grounded before removing the fuel cap and inserting the fuel nozzle into the aircraft fuel tank.
- 18C.2.8 After refuelling, a member of the crew verifies to the flight crew that all equipment has been removed, the fuel cap has been replaced securely and the aircraft is properly configured for flight.

Other references

- UK CAA CAP 437 – Chapter 8;
- HSAC Helideck Recommended Practice – RP163 2nd Edition
- HeliOffshore Safety Performance Model



International
Association
of Oil & Gas
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IOGP REPORT 690-4

Engineering

1. Basic principles

1A. Purpose

Ensuring aircraft are airworthy and reliable.

1B. Expectations

The Aircraft Operator provides airworthy aircraft and demonstrates that continuing airworthiness activities and aircraft maintenance are performed in accordance with its Approved Maintenance Programme (AMP).

1C. Processes and practices

1C.1 All appropriate organisational approvals and certificates are in place.

1C.2 A competent manager (Post-holder, Department Manager, or equivalent), is accountable for the Operator's management of continuing airworthiness and maintenance, or any contracted continuing airworthiness or maintenance organisations. Where applicable they are approved by the NAA.

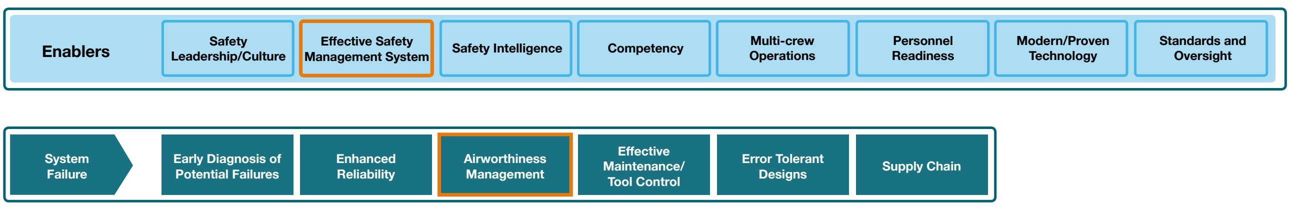
1C.3 The operator has an internal Aircraft Maintenance Organisation (AMO) or a contract with an external AMO to perform maintenance activities for the operator.

1C.4 The operator's continuing airworthiness management has a process, which provides formal work orders to the internal or contracted AMO, clearly describing what maintenance is required, when it has to be performed and to what standard, based on manufacturers' recommendations or the AMP.

1C.5 The Operator has a Maintenance Control manual or equivalent document which meets the requirements of ICAO Annex 6 Part III Chapter 6.2

Other references

- ICAO Annex 6 Vol 3 Chapters 2.2.11
- ICAO Doc 10086
- HeliOffshore Safety Performance Model



2. Continuing Airworthiness - Management

2A. Purpose

Ensuring aircraft are airworthy and reliable.

2B. Expectations

The Aircraft Operator is responsible for the continuing airworthiness of its aircraft.

2C. Processes and practices

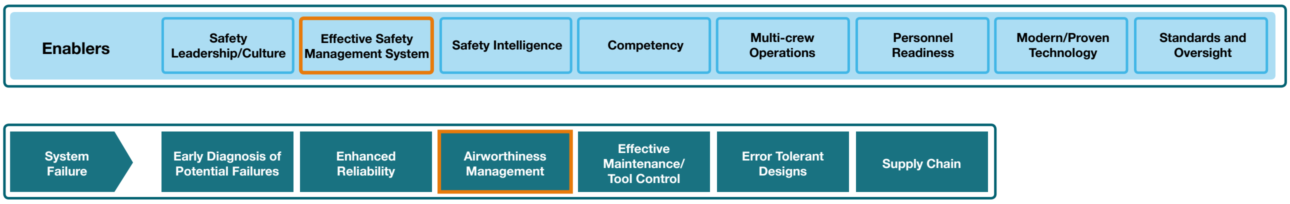
2C.1 The Operator maintains aircraft continuing airworthiness by:

- 2C.1.1 the development and review of an Approved Maintenance Programme (AMP) in accordance with applicable regulations and approved by the NAA;
- 2C.1.2 the review and management of all airworthiness data and instructions including any Airworthiness Directives (ADs) from the applicable NAA and Service Bulletins (SBs) from the OEM or STC holder.
- 2C.1.3 implementation of any operational directives or other measures mandated by the governing airworthiness authority in response to a safety issue or an issue reported by a relevant authority.
- 2C.1.4 the rectification of any defect and damage affecting safe operation, in accordance with applicable regulation or the approved MEL.
- 2C.1.5 Retention of Maintenance Data (see section 5.2.3 Maintenance Data)
- 2C.1.6 the planning of all maintenance, in accordance with the AMP.
- 2C.1.7 the control of the accomplished maintenance to ensure that it has been executed by an AMO to the required standard and in adherence to applicable regulations and Maintenance Data.
- 2C.1.8 the accomplishment of modifications using data approved by the governing NAA.
- 2C.1.9 the proper management of all continuing airworthiness records (e.g., airframe/engine logbooks, life limited parts and log cards), including the operator technical log.
- 2C.1.10 the proper monitoring of the aircraft configuration to ensure that it reflects the current status of the aircraft in accordance with the Type Certificate.
- 2C.1.11 the development of procedures, to be included in a manual approved by the NAA, to identify the duties and responsibilities, qualifications and experience of the staff employed to accomplish the above tasks; and how airworthiness related activities, including those described above, will be accomplished.

CONTINUING AIRWORTHINESS

Other references

- ICAO Annex 6 Part 3 Ch 6.1
- BARSOHO BIG 2.4
- HeliOffshore Safety Performance Model



3. Continuing Airworthiness – Approved Maintenance Programme

3A. Purpose

Ensuring aircraft are airworthy and reliable.

3B. Expectations

The Aircraft Operator manages an Approved Maintenance Programme (AMP) for each aircraft type operated

3C. Processes and practices

3C.1 The AMP complies with the following:

- 3C.1.1 instructions issued by the NAA
- 3C.1.2 instructions for continuing airworthiness issued by the OEM and holders of type certificates and supplemental type certificates
- 3C.1.3 instructions for continuing airworthiness issued by approved design organisations for modifications and repairs
- 3C.1.4 additional instructions proposed by the operator and approved by the OEM/STC holder and NAA.

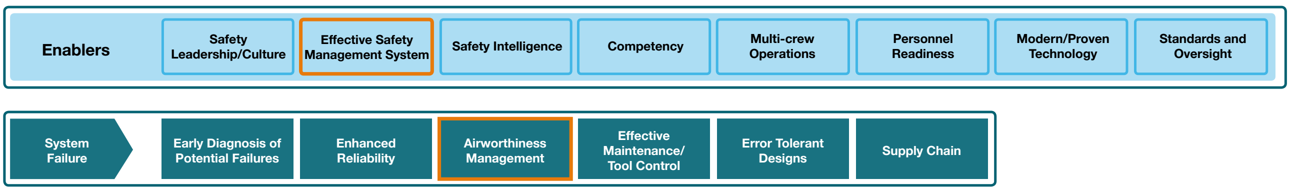
3C.2 The aircraft is only maintained according to one AMP.

3C.3 The AMP is approved by the NAA and is reviewed at least annually, considering the environmental conditions and aircraft utilisation, to:

- 3C.3.1 Ensure compliance with new and/or modified maintenance instructions included in the documents affecting the programme basis (e.g., from the OEM or Maintenance Review Board (MRB)).
- 3C.3.2 Evaluate the AMP effectiveness by monitoring systems, equipment and component reliability, aiming to reduce repetitive defects, malfunctions and damage to a minimal level.
- 3C.3.3 Adherence to scheduling of inspection and maintenance tasks; the source of such scheduling includes internal or external organisations, MRBs, OEM instructions or directives from the governing airworthiness authority.

Other references

- HeliOffshore Safety Performance Model



4. Continuing Airworthiness – Maintenance Data

4A. Purpose

Ensuring maintenance is conducted to the Approved Maintenance Program and Standards.

4B. Expectations

The Aircraft Operator manages the appropriate maintenance data (any applicable requirement, AD, SB, or information issued by the OEM/STC holder and/or NAA).

4C. Processes and practices

4C.1 All airworthiness data and instructions including any Airworthiness Directives (ADs) from the applicable NAA, are tracked.

4C.2 All ADs and SBs are evaluated.

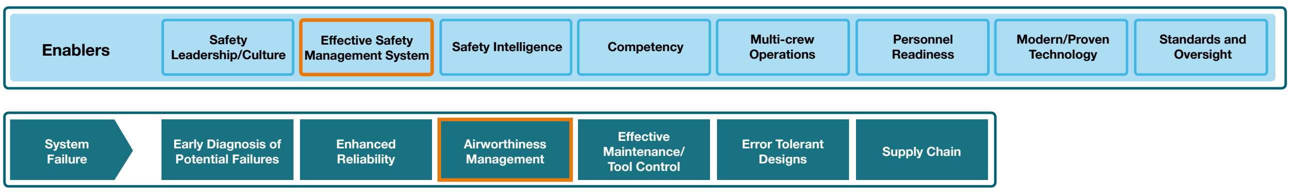
4C.3 All mandatory SBs are embodied, and there is an embodiment policy regarding OEM/STC holder recommended/optional SBs and any applicable bulletins are applied both aircraft and stored components.

4C.4 The maintenance of a list of compliance by airframe, engine, and STC installed appliance and developing a method to clearly demonstrate the status of compliance for each airframe and currently installed components.

4C.5 All applicable maintenance data, including manuals, is current and readily available for use by the continuing airworthiness and AMO staff.

Other references

- ICAO Doc 9760 Ch 9
- HeliOffshore Safety Performance Model



5. Continuing Airworthiness - Minimum Equipment List

5A. Purpose

Ensuring aircraft are airworthy and reliable.

5B. Expectations

The aircraft operator has a Minimum Equipment List (MEL) for each aircraft in the fleet

5C. Processes and practices

5C.1 The MEL is developed by the operator and based on, but is no less restrictive than, the Original Equipment Manufacturer (OEM) Master Minimum Equipment List (MMEL), and approved by the NAA.

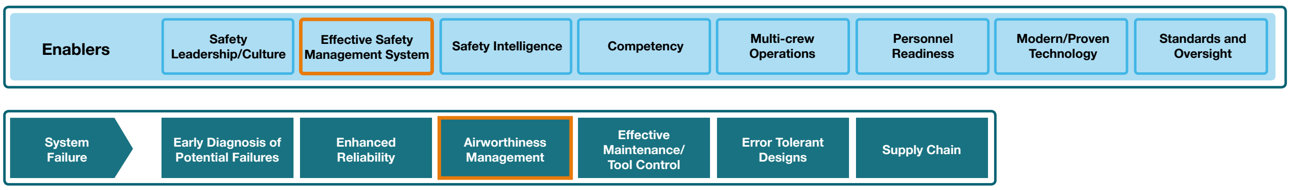
5C.2 Where permitted by local regulations, non-essential equipment and furnishings (NEF) are incorporated into the MEL or a supplement to the MEL.

5C.3 MELs are readily available to flight crews and maintenance personnel for reference.

5C.4 Required equipment as detailed in contract requirements are controlled by a Minimum Departure Standard (MDS), or equivalent.

Other references

- ICAO Annex 6 Part 2 4.1.3
- HeliOffshore Safety Performance Model



6. Continuing Airworthiness – Aircraft Maintenance Records

6A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

6B. Expectations

The Aircraft operator maintains proper maintenance and flight records.

6C. Processes and practices

6C.1 Maintenance and flight records are maintained as required by applicable national regulations.

6C.2 As a minimum, the aircraft records consist of the following documents:

- 6C.2.1 The airframe logbook
- 6C.2.2 The engine logbook(s) and related components log cards
- 6C.2.3 The APU logbook(s) (if applicable)
- 6C.2.4 Log cards for any SLL and TBO component
- 6C.2.5 The Aircraft Technical Log (ATL)

6C.3 The above aircraft records contain complete and current:

- 6C.3.1 ADs, SBs, or information issued by the OEM/STC holder and NAA
- 6C.3.2 Status of modifications and repairs
- 6C.3.3 Status of compliance with the AMP
- 6C.3.4 Status of SLL components
- 6C.3.5 Mass and balance report
- 6C.3.6 List of deferred defects

6C.4 An ATL is used that meets local NAA requirements:

6C.5 All the above-mentioned continuing airworthiness records are managed by means of a reliable aviation maintenance software programme, or equivalent capable of managing:

- 6C.5.1 Component tracking, including any condition-based penalties cycles from operational flight data (e.g., increased gross weight, start/stop engine cycles, OEI events, etc.)
- 6C.5.2 Flight time tracking
- 6C.5.3 Logbook tracking
- 6C.5.4 Compliance tracking for all issued ADs and SBs
- 6C.5.5 Work Order management
- 6C.5.6 Inventory control.

CONTINUING AIRWORTHINESS

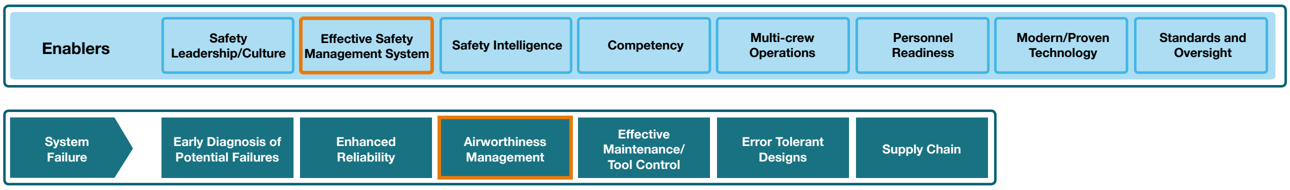
6C.6 All maintenance records of work carried out on its aircraft are maintained to demonstrate that the work has been executed to the required standard.

6C.7 The records are stored in a secure manner that ensures protection from damage, alteration, and theft.

6C.8 Electronic records have a backup system which is updated at least every 24 hours.

Other references

- ICAO Annex 6 Part 3 Ch 6.2
- HeliOffshore Safety Performance Model



7. Continuing Airworthiness – Reliability programme

7A. Purpose

Ensuring aircraft are airworthy and reliable.

7B. Expectations

The aircraft operator has a reliability programme in place.

7C. Processes and practices

7C.1 The aircraft operator has a Reliability Program that monitors the effectiveness of the maintenance program by recording, as a minimum:

- 7C.1.1 Component Low Mean Time Before Unscheduled Removals (MTBUR) by aircraft type
- 7C.1.2 Flight hour trends of non-serialised parts usage by aircraft type
- 7C.1.3 Flight hour model trends of MEL/MDS usage by system by aircraft type
- 7C.1.4 Flight Hour Pilot reported discrepancy trends by aircraft type

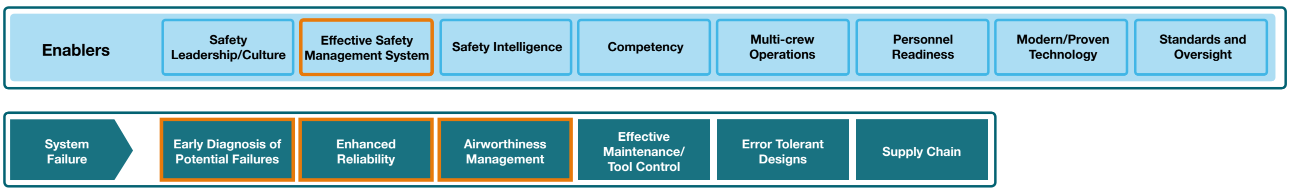
7C.2 There is a system in place to review human errors in maintenance and quality through a Just Culture mechanism with the focus on improving company procedures and enhancing the barriers to prevent maintenance errors. These are then trended, by type/model and casual factors related to the events.

7C.3 There is a procedure in place to alert the TC/STC holder to any design feature that increases the risk of a critical error.

7C.4 There is a procedure in place to regularly communicate reliability data with the TC/STC holder with a focus on improving low performing systems and extending inspection intervals (human error risk reductions) on repeated "no defect noted" inspections of non-flight critical systems.

Other references

- ICAO Annex 8 Part II Chapter 4.2
- ICAO Doc 9760 Part III Chapter 7.4
- HeliOffshore Safety Performance Model



8. Continuing Airworthiness - Workplace

8A. Purpose

Ensuring aircraft are airworthy and reliable.

8B. Expectations

The aircraft operator provides suitable accommodation for continuing airworthiness staff.

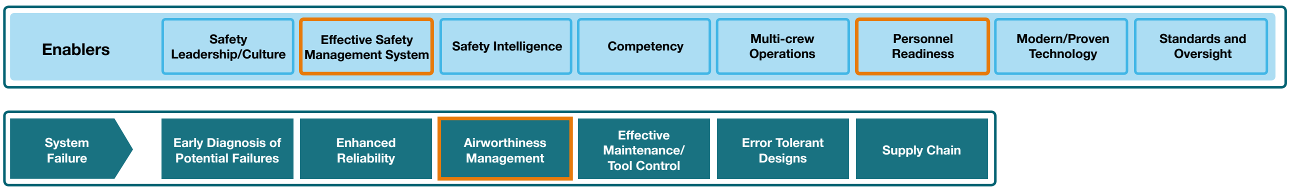
8C. Processes and practices

8C.1 Continuing airworthiness staff are provided with suitable office accommodation so that they can carry out their designated duties in a manner that contributes to upholding good standards.

8C.2 A dedicated space for a technical library is included in the accommodation, and fireproof lockers are provided for hard copies of airworthiness records.

Other references

- ICAO Doc 9760 Chapter 10.6.1.1
- HeliOffshore Safety Performance Model



9. Maintenance management – Aircraft Maintenance Organisation Procedures

9A. Purpose

Ensuring maintenance is conducted to the AMP and Standards.

9B. Expectations

The maintenance organisation has a set of documented procedures.

9C. Processes and practices

9C.1 The procedures include at least the following:

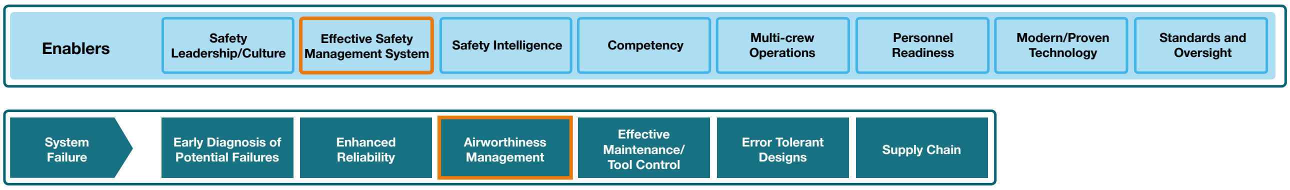
- 9C.1.1 A general description of the scope of work authorised under the organisation's terms of approval
- 9C.1.2 A description of the organisation's procedures and quality or inspection system
- 9C.1.3 A general description of the organisation's facilities, including a list of operating locations, where applicable
- 9C.1.4 The names, duties and responsibilities of the accountable executive and post holders involved in maintenance management, including their deputies
- 9C.1.5 An organisation chart showing associated chains of responsibility
- 9C.1.6 A description of the procedures used to establish the competence of maintenance personnel
- 9C.1.7 A description of the method used for the completion and retention of maintenance records
- 9C.1.8 A description of the procedures for preparing the maintenance release and the circumstances under which the release is to be signed
- 9C.1.9 The personnel authorised to sign the maintenance release and the scope of their authorisation
- 9C.1.10 A description, when applicable, of contracted activities and arrangements for quality assurance thereof
- 9C.1.11 A description, when applicable, of the additional procedures for complying with an operator's maintenance procedures and requirements
- 9C.1.12 A description of the procedures for complying with the information reporting requirements of any reliability programme
- 9C.1.13 A description of the procedure for receiving, assessing, amending and distributing within the maintenance organisation all necessary airworthiness data from the organisation responsible for the type design
- 9C.1.14 Procedures for maintenance check flights

MAINTENANCE MANAGEMENT

9C.2 These procedures are contained in a dedicated manual (e.g., Company Maintenance Manual and Maintenance Organisation Exposition) that is amended as necessary to reflect the actual organisation processes.

Other references

- ICAO Annex 8 Part II Chapter 6.3
- ICAO Annex 6 Part 3 Ch 9.2
- HeliOffshore Safety Performance Model



10. Maintenance Management - Maintenance planning

10A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

10B. Expectations

An effective process for scheduling of maintenance is in place.

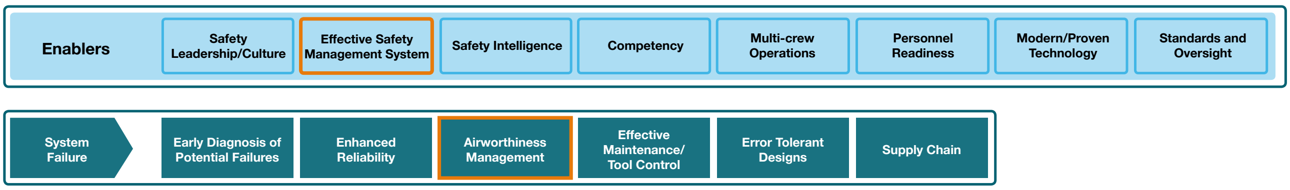
10C. Processes and practices

10C.1 The planning of maintenance, in accordance with the AMP, is executed by using reliable software, or equivalent which allows for traceability.

10C.2 Formal work orders, listing each scheduled maintenance inspection/check required, are issued by the Continuing Airworthiness Management and performed by the AMO.

Other references

- ICAO Annex 8 Part IVB Chapter 7.7
- HeliOffshore Safety Performance Model



11. Maintenance management - Maintenance records

11A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

11B. Expectations

The maintenance organisation keeps detailed maintenance records, allowing the airworthiness status and history of the aircraft to be clearly established.

11C. Processes and practices

11C.1 There is a work order or technical log system (or electronic equivalent) containing detailed record of the accomplishment of each maintenance task. is a work card or work sheet system (or electronic equivalent).

11C.2 Any parts utilised in the performance of said tasks are determined through the paper or electronic system.

11C.3 Maintenance records are neat, legible, and complete in accordance with operator procedures and local regulation.

11C.4 Staged Work Sheets (SWS) or computerised task cards in place for complex tasks that require the use of multiple OEM maintenance manuals or reference materials, (e.g. engine changes).

11C.5 SWS are in place for tasks where the operator is required to record information and has elected to utilise forms for the process.

11C.6 SWS are part of a revision process to ensure endure engineers are using the correct revision of the technical publications.

11C.7 Any duplicate inspection requirement is clearly identified and signed off.

11C.8 Identifying stamps or electronic signatures are and detailed in the operator procedures and are listed in the organisation's documented processes against the names of the authorised personnel.

11C.9 The work cards or work sheets are collected into a work package which contains maintenance records in a structured manner.

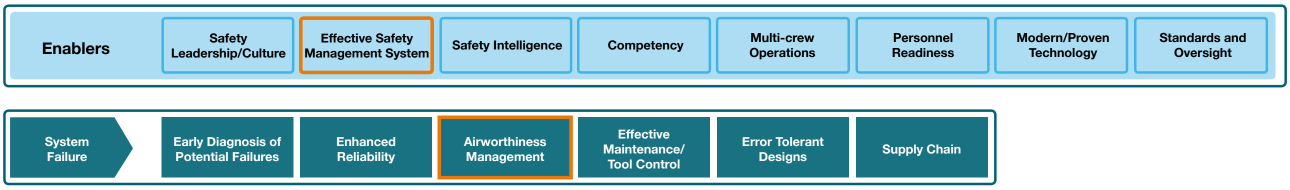
11C.10 Maintenance records refer to the revision status of the maintenance data used.

11C.11 All maintenance records are checked for completeness and compliance as detailed in the operator procedures.

MAINTENANCE MANAGEMENT

Other references

- ICAO Annex 6 Vol 3 Chapter 6.4
- HeliOffshore Safety Performance Model



MAINTENANCE MANAGEMENT

12. Maintenance management - Foreign Object Damage checks

12A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

12B. Expectations

The AMO has a process for a post-maintenance verification check for damage, security, tools, and equipment.

12C. Processes and practices

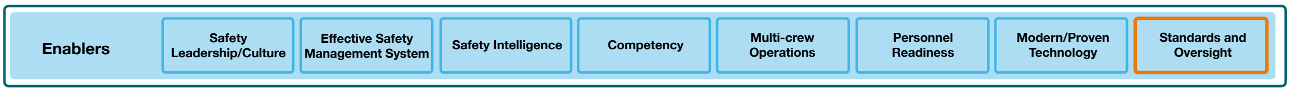
12C.1 On completion of each maintenance task, a verification check is carried out to ensure the aircraft or component is clear of all tools, equipment and any other extraneous parts and material, and that all access panels removed have been refitted correctly.

12C.2 Procedures are in place to conduct leak checks when any maintenance has been performed which compromises the integrity of the fuel, oil, or hydraulic systems.

12C.3 The verification check is recorded on the maintenance work card system.

Other references

- https://www.skybrary.aero/index.php/Foreign_Object_Debris_(FOD)
- HeliOffshore Safety Performance Model



13. Maintenance Management - Independent Inspections (Note1)

13A. Purpose

Ensuring design and continuing airworthiness practices minimise the probability and consequence of human error in maintenance.

13B. Expectations

There is a procedure to clearly identify and document Critical Maintenance Tasks (CMT).

13C. Processes and practices

13C.1 CMTs are subject to an independent inspection carried out by a second person not involved in the original task. At least one of these people is qualified and authorised to sign the Maintenance Release.

13C.2 The training, competence and authorisation for those staff approved to perform duplicate inspections on the aircraft or components are documented.

13C.3 CMT procedures are detailed for duplicate inspections during complex or lengthy tasks using staged worksheets (e.g., an engine or gearbox replacement, where duplicate inspections are performed at key stages of the overall task to ensure the current work is properly inspected and certified, before it is covered by further assembly).

13C.4 There is a procedure to alert the TC Holder or STC Holder to any design features or maintenance requirements that increase the risk of critical error if/when identified.

13C.5 CMTs are maintenance tasks that involve the assembly or disturbance of any system that can 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.

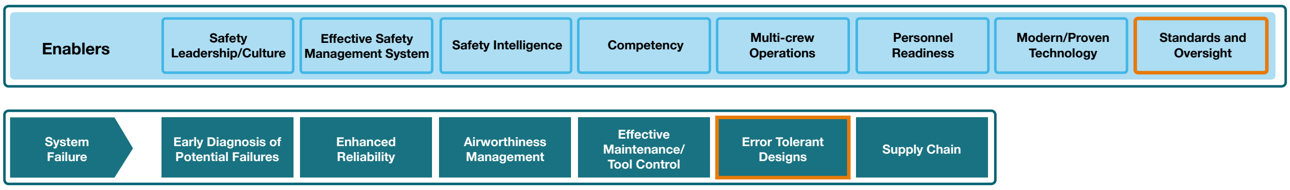
13C.6 CMTs are also identified as part of the companies SMS. These maybe simple, repetitive tasks, which have been identified as being prone to error (engine cowling closure, oil caps) may be subjected to a secondary inspections and procedures are in place for these tasks.

Note 1:
- The principle of additional inspections on critical aircraft systems is well understood and accepted.
- National Aviation Authorities (NAA) have given these additional inspections different titles: Duplicate Inspections by the UK CAA; Independent Inspections by CASA and EASA; Required Inspection Items (RII) by the FAA; and Dual Inspection or Independent Check by Transport Canada.

MAINTENANCE MANAGEMENT

Other references

- Industry recommended practice
- UKCAA CAA PAPER 2002/06
- HeliOffshore Safety Performance Model



14. Maintenance management – Release to Service

14A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

14B. Expectations

The aircraft operator has a documented system of maintenance control and release to service of all aircraft.

14C. Processes and practices

14C.1 The Operator will not operate an aircraft unless it is maintained and released to service by an AMO.

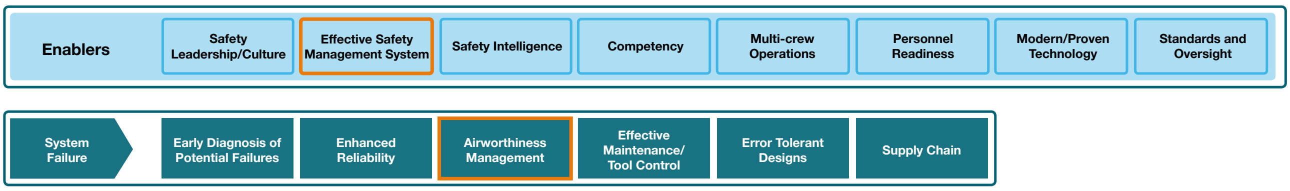
14C.2 A ʻMaintenance Release to Service' means that the work specified in the work order is carried out in accordance with the applicable rules and, in respect to that work, an appropriately rated Licensed Engineer considers the aircraft/component ready for service.

14C.3 A Certificate of Release to Service (CRS) is then issued by engineers, as authorised by the AMO, where it verified that all maintenance, as required by the work order, has been properly carried out.

14C.4 Elementary work or servicing (e.g., oil changes and light bulb replacement) are performed under the supervision of a Licensed Engineer.

Other references

- ICAO Annex 6 Part 3, Section II, Chapter 6.7
- HeliOffshore Safety Performance Model



15. Maintenance Observation Programme

15A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance and ensuring continuous improvement.

15B. Expectations

The operator has a structured Maintenance Observation Programme in place.

15C. Processes and practices

15C.1 A structured Maintenance Observation Program (MOP) to monitor maintenance practices at regular intervals through observation of maintenance activity at each operational location is in place. The MOP data is analysed, and appropriate action plans implemented.

Other references

- BARSOHO - 1.2: Effective Safety Management System - MOP
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

16. Quality (Compliance Monitoring) System

16A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance and ensuring continuous improvement.

16B. Expectations

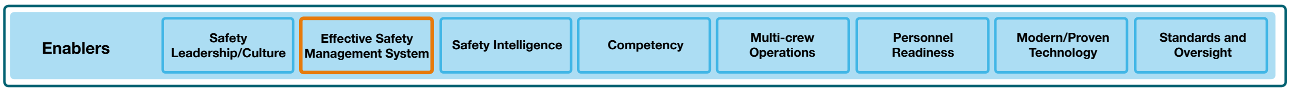
The Operator has an independent Quality System (compliance monitoring), or Quality Assurance System. For further information see 690-1 Safety Management Systems

16C. Processes and practices

- See 690-1 – SMS, Section 11 - Continuous Improvement - Assurance

Other references

- ICAO Annex 8 Part II 6.4.2
- HeliOffshore Safety Performance Model



MAINTENANCE MANAGEMENT

17. Occurrence reporting system

17A. Purpose

Ensuring a collaborative approach to sharing safety information to directly benefit the entire industry and all stakeholders.

17B. Expectations

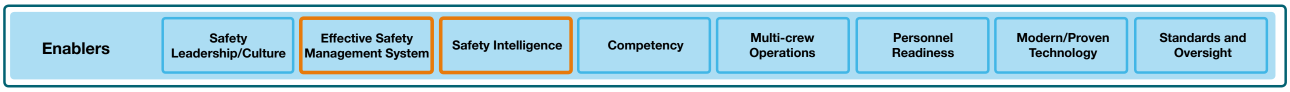
The aircraft operator and the AMO both have occurrence reporting systems in place.

17C. Processes and practices

17C.1 A structured occurrence reporting system that is integral to the SMS 690-1 – SMS, Section 8 - Incident Reporting, Investigation and Learning

Other references

- ICAO Annex 19 Chapter 5
- HeliOffshore Safety Performance Model



18. Maintenance Check Flights

18A. Purpose

Ensuring aircraft are airworthy.

18B. Expectations

The aircraft operator has documented procedures for Maintenance Check Flights (MCF).

18C. Processes and practices

18C.1 Maintenance check flights are carried out as required by

- 18C.1.1 the Aircraft Maintenance Manual (AMM)
- 18C.1.2 As required by the operator's continuing airworthiness management after maintenance
- 18C.1.3 For verification of a successful defect rectification or to assist with fault isolation or troubleshooting.

18C.2 Maintenance check flights are performed by competent and trained Flight Crew, appropriate for the complexity of the aircraft and the level of the maintenance check flight required.

18C.3 A safety briefing is carried out prior to the MCF which considers the risks associated with the flight.

Other references

- European Union Aviation Safety Agency (EASA) Opinion 01/2017. *Maintenance check flights.* 8 March 2017. https://www.easa.europa.eu/document-library/opinions/opinion-012017
- UK CAA CAP 1038 – Check Flight Handbook
- BARSOHO BIG – Section 2.4 Airworthiness Management
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

MAINTENANCE FACILITES AND STORES

19. Maintenance facilities - General

19A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

19B. Expectations

Maintenance facilities are adequate for the task.

19C. Processes and practices

19C.1 Maintenance facilities are capable of enclosing the largest aircraft for which the AMO or operator is rated.

19C.2 Specialised workshops are segregated to ensure that environmental or work area contamination is unlikely to occur.

19C.3 Adequate office facilities are available for personnel and particularly those engaged in the management of quality, planning, and technical records.

19C.4 Maintenance facilities have lighting suitable for the task and provide protection from adverse weather conditions.

19C.5 A FOD prevention programme is in place in the maintenance facilities.

Other references

- ICAO Annex 8 Part II Chapter 6.5
- ICAO Doc 9760 Chapter 10.6
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

20. Maintenance facilities - Working conditions

20A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

20B. Expectations

The AMO ensures that personnel work safely in appropriate conditions

20C. Processes and practices

20C.1 Personnel are equipped with appropriate clothing for work in the prevailing environmental conditions.

20C.2 Personnel are equipped with appropriate PPE and provided with adequate instructions for its use.

20C.3 A "Working at Height" policy has been established and appropriate equipment (PPE, access equipment, stands, lifts, harnesses etc.) is provided.

20C.4 For maintenance of aircraft, hangars are not essential, but a hangar or other shelter is used during inclement weather (e.g., outside air temperatures <5°C or >40°C, during snowfall, heavy rain, hail or sandstorm).

20C.5 The maintenance working environment is such that the particular maintenance or inspection tasks can be carried out without environmentally-caused hazards to the work process or maintenance personnel, or significant distractions.

Other references

- ICAO Annex 8 Part II Chapter 6.5
- ICAO Doc 9760 Chapter 10.6
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

MAINTENANCE FACILITES AND STORES

21. Aircraft components/material management – Equipment and tools

21A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

21B. Expectations

The AMO has a process for the control of tools and equipment.

21C. Processes and practices

21C.1 All tools and equipment are made available during the execution of maintenance as specified in the OEM's maintenance data. Such tools and equipment are supplied by the organisation conducting the maintenance and are not privately owned.

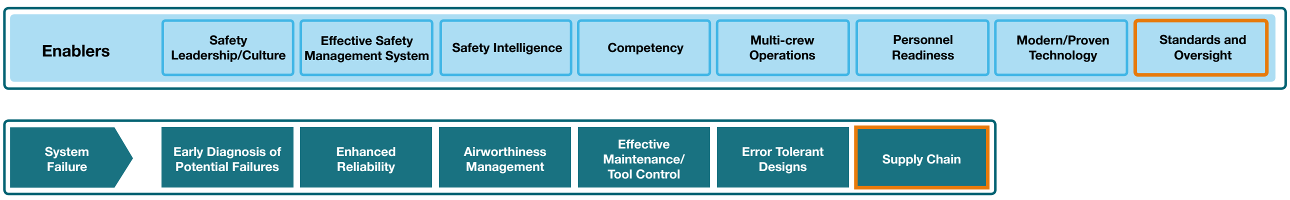
21C.2 All tools and equipment are subject to a control process to identify the user, the item's whereabouts and the aircraft concerned; the process includes a reconciliation, daily or prior to an aircraft's release for service, whichever comes first.

21C.3 A process is in place to track tools and equipment that require inspection, or service or calibration, and a system of labelling all such tools and equipment is established to give information on when the next inspection, service or calibration is due, and/or if the item is unserviceable for any other reason. Inspection, calibration, or servicing procedures for all such tools and equipment comply with manufacturers' instructions, regulatory requirements and/or applicable industry standards.

21C.4 When a remote outstation is set up, all necessary equipment and supplies are available on site according to the authorised level of maintenance.

Other references

- HeliOffshore Safety Performance Model



MAINTENANCE FACILITES AND STORES

22. Aircraft components/material management – Bonded, quarantine and inflammables storage areas

22A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

22B. Expectations

The AMO has suitable aircraft parts, quarantine and inflammables/explosive storage areas.

22C. Processes and practices

22C.1 Storage facilities for serviceable aircraft components are clean, well-ventilated, and maintained at a constant dry temperature to minimise the effects of condensation.

22C.2 Unauthorised access to serviceable parts is prevented.

22C.3 Manufacturer's storage recommendations are followed, when available. Instructions are available for items requiring special handling.

22C.4 Dedicated and clearly identified areas are provided to properly segregate incoming, unserviceable and serviceable material.

22C.5 Parts certified as fit to be used on or fitted to an aircraft are labelled (tagged) 'Serviceable' and held in a bonded store awaiting allocation to an aircraft.

22C.6 Parts not yet certified or parts that have failed certification, have reached their life limited expiry date or have been damaged are held in a quarantine store until they are disposed of in an appropriate manner (e.g., returned to supplier, recertified, repaired, scrapped).

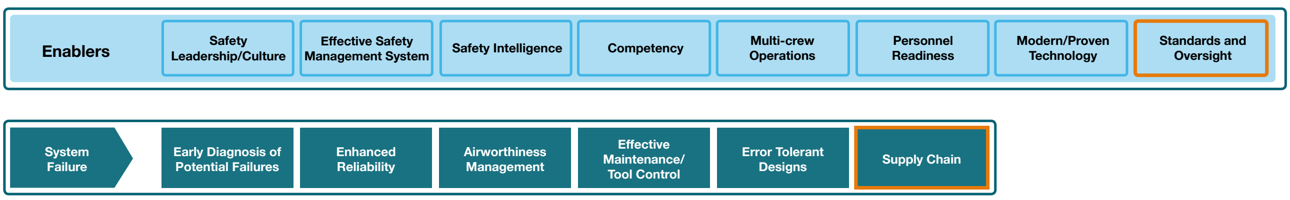
22C.7 Inflammable and explosive materials, such as paints and lubricants (may include some chemicals) are stored in a properly constructed fireproof storage compartment which is built and equipped to meet the local fire regulations.

22C.8 There is a programme to control parts limited by shelf life.

22C.9 There is a process for the identification and disposal of unserviceable parts, materials, tools, and equipment.

Other references

- ICAO Annex 8 Part II Chapter 6.5
- HeliOffshore Safety Performance Model



MAINTENANCE FACILITES AND STORES

23. Aircraft components/material management – Responsibilities of stores personnel

23A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

23B. Expectations

The AMO has defined the responsibilities of stores personnel.

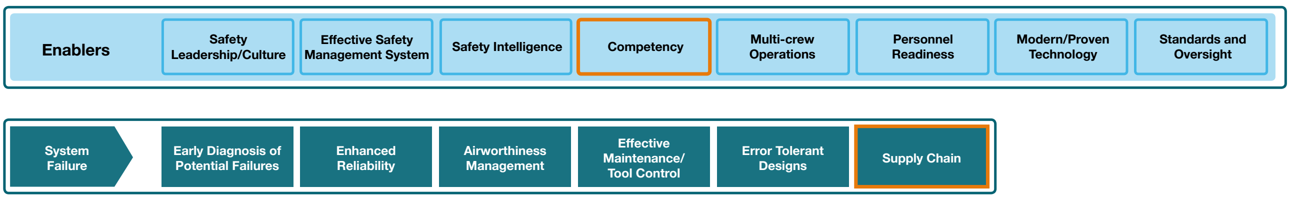
23C. Processes and practices

23C.1 Stores personnel are trained and competent.

23C.2 Incoming components/material are inspected to ensure compliance with company procedures to include shipping damage and proper certification. Components with a time interval or life limit have paperwork quality reviewed and are processed per company procedures. Acceptance into supply or movement to quarantine will be permanently recorded by name or company identifier electronically.

Other references

- ICAO Annex 8 Part II Chapter 6.6.5
- HeliOffshore Safety Performance Model



MAINTENANCE FACILITES AND STORES

24. Maintenance - Aircraft fuel tank checks

24A. Purpose

Ensuring the quality of fuel dispensed to aircraft is acceptable.

24B. Expectations

Aircraft fuel tanks are checked for quality.

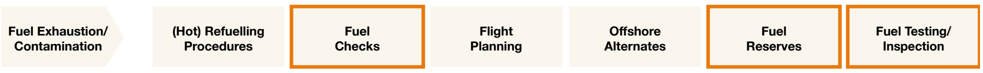
24C. Processes and practices

24C.1 Aircraft fuel tank checks are carried out daily as specified by the airframe manufacturer.

24C.2 Water in suspension tests are carried out using a recognised process and samples are retained for 24 hours.

Other references

- HeliOffshore Safety Performance Model



MAINTENANCE PERSONNEL

25. Maintenance personnel general requirements – Fatigue prevention

25A. Purpose

Ensuring maintenance personnel are alert and fit for work.

25B. Expectations

A fatigue management programme is in place for maintenance personnel.

25C. Processes and practices

25C.1 The fatigue management programme complies with national legislation.

25C.2 The following minimum standard is applied to all engineering staff unless national legislation is more restrictive:

24C.1.1 Total work periods do not exceed 12 hours in any 24-hour period. Where it is essential that the working period is extended, the Head of Maintenance approves it on a case-by-case basis.

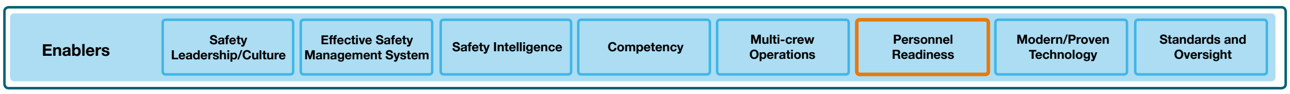
24C.1.2 Each full working shift is followed by a minimum 8-hour rest period. When working a 24-hour split shift online operations, at least 6 hours rest is provided excluding travel. There is a minimum of 7 days off per month of which at least 4 are in a minimum of two-day periods. When the location or climate is arduous, the rest period is increased to minimise fatigue.

25C.3 All maintenance staff will subject to a recurrent medicals, at minimum of two years, and all staff are deemed to be medically fit for employment, unless national legislation is more restrictive.

25C.4 A process is in place which defines the required man hours for each maintenance task, and links this to maintenance planning and forecasting.

Other references

- UKCAA CAA PAPER 2002/06
- Work Hours of Aircraft Maintenance Personnel
- HeliOffshore Safety Performance Model



MAINTENANCE PERSONNEL

26. Maintenance personnel – Qualifications and experience

26A. Purpose

Ensuring personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

26B. Expectations

Maintenance management and personnel are appropriately qualified, experienced and competent for the task

26C. Processes and practices

26C.1 An accountable person is appointed to manage all maintenance activities performed by the Continuing Airworthiness Organisation or AMO, whether these are performed in-house or by a contracted organisation.

26C.2 Competence and experience requirements for these appointments and other supervisory, licensed, and authorised staff are documented.

26C.3 Personnel carrying out aircraft maintenance hold appropriate licences and endorsements.

26C.4 In addition, a system of local approvals exists whereby the operator or maintenance organisation approves the individual to exercise the privileges granted by the licence and/or endorsements held on the range of equipment operated or maintained by that organisation.

26C.5 Such approvals are granted following formal type training and/or local on-the-job training/ evaluation and tracked in an appropriate process.

Other references

- ICAO Annex 8 Part II Chapter 6.6
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

MAINTENANCE PERSONNEL

27. Maintenance personnel – Training

27A. Purpose

Ensuring personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

27B. Expectations

There is an appropriate training programme for continuing airworthiness and maintenance personnel.

27C. Processes and practices

27C.1 There is a training programme which provides competent personnel with appropriate initial and continuation training as defined by their roles and responsibilities and includes details of the accepted training providers, training syllabi and persons/organisations responsible for training.

27C.2 A training and authorisation record is maintained for all personnel.

27C.3 All maintenance personnel receive formal training and have factory or equivalent level training on the type of aircraft to be used.

27C.4 All training is tracked in an appropriate process.

Other references

- ICAO Annex 8 Part II Chapter 6.6.5
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

28. Maintenance personnel – Continuation/recurrent training

28A. Purpose

Ensuring personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

28B. Expectations

Continuing airworthiness

28C. Processes and practices

28C.1 Continuation/recurrent training is conducted at least every three years and includes as a minimum:

- 27C.1.1 Type Specific Training
- 27C.1.2 Changes in relevant regulatory requirements
- 27C.1.3 Organisational procedures
- 27C.1.4 Human factors issues identified from any internal or external analyses of incidents
- 27C.1.5 Information on relevant AD/SBs or similar documents issued since the last training session
- 27C.1.6 Experience from incidents and investigations, whether internal or external

28C.2 All training is tracked in an appropriate process.

Other references

- ICAO Annex 8 Part II Chapter 6.6.5
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

MAINTENANCE PERSONNEL

29. Maintenance personnel – Competence Assessment

29A. Purpose

Ensuring personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

29B. Expectations

Continuing airworthiness and maintenance personnel are subject to periodic competence assessments.

29C. Processes and practices

29C.1 Continuing airworthiness and maintenance personnel are subject to competence assessments at least every 3 years see 690-1 – SMS, Section 12, Training and Education

Other references

- ICAO Annex 8 Part II Chapter 6.6.4
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

MAINTENANCE PERSONNEL

30. Maintenance personnel – Supervision of unlicensed and recently licensed maintenance personnel

30A. Purpose

Ensuring personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

30B. Expectations

There is adequate supervision of maintenance work and Certificates of Release to Service.

30C. Processes and practices

30C.1 Where organisations employ a mix of licensed, unlicensed or recently licensed personnel, the proportion of those having Certificate of Release to Service (CRS) privileges to others is sufficiently high to ensure adequate supervision of work is provided at all times.

Other references

- ICAO Annex 8 Part II Chapter 6.6.3
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

HUMS

31. HUMS - Equipment

31A. Purpose

Ensuring the early detection of impending critical failures to facilitate timely corrective action.

31B. Expectations

Helicopters are fitted with an approved HUMS system.

31C. Processes and practices

31C.1 The HUMS System is capable of monitoring the rotor and rotor drive systems. For detailed specification 690-5 – Equipment Fit, Section 9C

31C.2 The HUMS system is certified to CS-29.1465;

31C.3 The system is OEM supported.

Other references

- HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0)
- HeliOffshore Safety Performance Model

32. HUMS – Download and primary analysis

32A. Purpose

Ensuring the early detection of impending critical failures to facilitate timely corrective action.

32B. Expectations

Documented procedures for the download and primary analysis of HUMS data are established.

32C. Processes and practices

32C.1 The HUMS download and initial analysis result are recorded and certified in the aircraft technical log or similar document.

32C.2 The aircraft dispatch procedure for flight following the download and initial analysis details and includes the following requirements for action

- 31C.2.1 Where there are no HUMS exceedances – the aircraft is clear for dispatch with no further action
- 31C.2.2 With a yellow, amber, or intermediate HUMS exceedance – the dispatch of an aircraft with an existing alert is subject of either a maintenance action which is recorded and certified, or to control process within the operator's continued airworthiness organisation, a record of which is in the aircraft approved documentation.
- 31C.2.3 With a red or high HUMS exceedance – the aircraft is not dispatched until a full analysis and, where necessary, maintenance investigation has been completed and any subsequent defect rectification certified, and the aircraft released to service.

Other references

- HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0)
- HeliOffshore Safety Performance Model

HUMS

33. HUMS – Download periodicity – Normal monitoring

33A. Purpose

Ensuring the early detection of impending critical failures to facilitate timely corrective action.

33B. Expectations

The periodicity for the download and initial analysis is clearly defined.

33C.Processes and practices

33C.1 The HUMS is downloaded and an initial line analysis, to review threshold alerts, is conducted at the following periodicities:

32C.1.1 For offshore flights – on every return to the Main Operating Base (HeliOffshore HUMS Recommended Practice definition), whether for passenger or crew change or for shut down

32C.1.2 For operations where the aircraft routinely returns to the operating base at a high frequency, due to short sector lengths, the download frequency can be extended out to a period not exceeding 10 hours of elapsed flying time.

32C.1.3 Where aircraft are based offshore, in remote locations, or detached to another base, arrangements are made using portable ground stations and platform internet connections to provide an equivalent capability where practicable. The total time between downloads is at a minimum daily.

Other references

- HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0)
- HeliOffshore Safety Performance Model

HUMS

34. HUMS – Unserviceability

34A. Purpose

Ensuring the early detection of impending critical failures to facilitate timely corrective action.

34B. Expectations

The operator has defined a MEL, MDS, or equivalent document which incorporates HUMS equipment.

34C. Processes and practices

34C.1 The MEL, MDS, or equivalent document details the HUMS equipment that can be temporarily unserviceable, and includes associated operating conditions, limitations, or procedures as applicable.

34C.2 System unserviceability and subsequent deferment of unserviceable channels according to the MEL is based upon the following:

33C.2.1 The main system, i.e., Data Acquisition Unit or Data Acquisition Processing Unit (DAPU), Bearing Monitor Unit (BMU) or similar, is serviceable.

33C.2.2 The unserviceability or unavailability of any other single component of the system, including individual accelerometers, is:

- Failure while Close Monitoring: **0 (zero) flying hours**
- Failure while under Normal Monitoring: **15 flying hours**.

34C.3 Deferment period for individual accelerometers or components are tracked as separate defects.

Other references

- Industry Recommended Practice - HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0)
- HeliOffshore Safety Performance Model

35. HUMS – Support Processes – Training and Data Management

35A. Purpose

Ensuring the early detection of impending critical failures to facilitate timely corrective action.

35B. Expectations

The necessary supporting processes for the effective use of HUMS are in place.

35C. Processes and practices

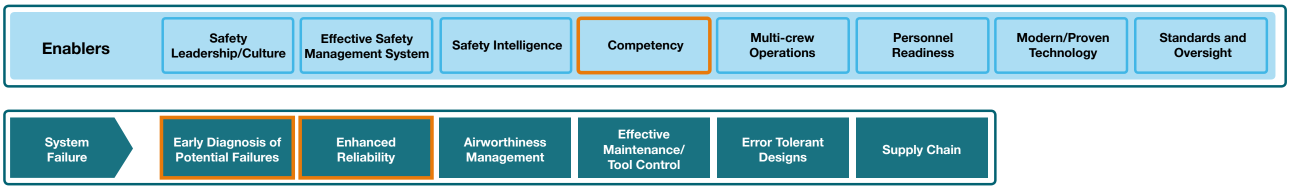
35C.1 The support processes for HUMS are managed in accordance with the HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0), including:

- 34C.1.1 Acronyms – typical HUMS processes, etc.
- 34C.1.2 Definitions – Including personnel typically authorised to review, analyse, and certify HUMS data
- 34C.1.3 Scope – clarification of terms, etc.
- 34C.1.4 Ground Station Software and Data Management – databases, hardware processes, etc.
- 34C.1.5 Download and Primary Analysis – excepting areas above where additional IOGP guidance is provided
- 34C.1.6 HUMS Data Collection
- 34C.1.7 Communication – internal, external, etc.
- 34C.1.8 Automated Detection Tools and Web Portals – interconnectivity, system use, OEM instructions
- 34C.1.9 System Performance Reports – original equipment Manufacturer/Overhaul Facility Support, Defect Trending Reports
- 34C.1.10 Responsibilities and Process Descriptions – HUMS staff responsibilities, process descriptions, etc.
- 34C.1.11 Training – Defines training for all staff with HUMS responsibilities.
- 34C.1.12 Management Oversight – corporate oversight, departmental oversight, line level oversight
- 34C.1.13 Quality Assurance – audit plan, documentation, etc.
- 34C.1.14 Appendices – Include QA Checklists for HUMS

HUMS

Other references

- Industry Recommended Practice - HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0)
- HeliOffshore Safety Performance Model



HUMS

36. HUMS – In-Flight data transfer

36A. Purpose

Ensuring the early detection of impending critical failures to facilitate timely corrective action.

36B. Expectations

In-flight data transfer, or a similar process, which allows HUMS data to be transmitted to a base is in place, if available for the aircraft type and region.

36C. Processes and practices

36C.1 The data transfer system allows:

- 36C.1.1 Remote (Wireless or other means) downloads
- 36C.1.2 Inflight Exceedances to be transmitted to a base

36C.2 Procedures and training are in place for any communication with the flight crew.

36C.3 Relevant information, if applicable, passed to the flight crew is assessed by a licenced engineer, based on approved procedures and maintenance data.

Other references

- Industry Recommended Practice - HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0)
- HeliOffshore Safety Performance Model

International Association of Oil & Gas Producers

IOGP REPORT 690-5

Helicopter and Equipment

1. Certification Standard

1A. Purpose

Ensuring the relative merits of safety features, design standards and service experience are assessed so as to select reliable and resilient aircraft and equipment, suitable for the intended operations.

1B. Expectations

Contracted helicopters meet an appropriate certification standard.

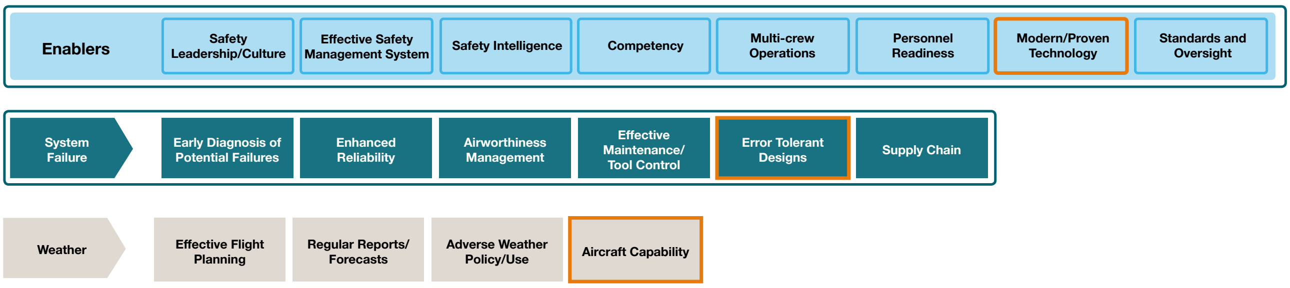
1C. Processes and Practices

1C.1 Contracted aircraft are certificated to one of the following specifications:

- 1C.1.1 Code of Federal Regulations Title 14 Part 29 – Airworthiness Standards Transport Category Rotorcraft (FAR 29) Amendment 45
- 1C.1.2 Joint Airworthiness Regulations 29 (JAR 29) Change 1
- 1C.1.3 European Aviation Safety Agency (EASA) Certification Specifications, Acceptable Means of Compliance for Large Rotorcraft (CS-29) Initial issue
- 1C.1.4 FAR 27 Amendment 31
- 1C.1.5 JAR 27, Issue 1
- 1C.1.6 CS-27, Initial issue
- 1C.1.7 Later equivalent standards.

Other References

- Norske Olje & Gas 066 Chapter 6.1
- BARSOHO BIG - 1.7: Modern/Proven Technology
- HeliOffshore Safety Performance Model



2. Instrument Flight Rules (IFR) Flights

2A. Purpose

Ensuring the relative merits of safety features, design standards and service experience are assessed so as to select reliable and resilient aircraft and equipment, suitable for the intended operations.

2B. Expectations

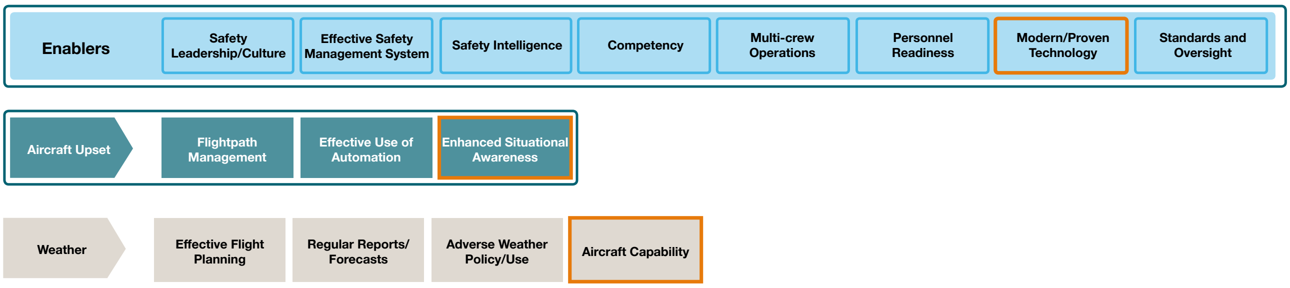
Contracted helicopters are equipped for IFR operations.

2C. Processes and Practices

2C.1 Contracted aircraft are fully equipped for IFR Operations relevant to the region of operations.

Other references

- ICAO Annex 6 Vol 3 Chapter 4.4
- HeliOffshore Safety Performance Model



3. Autopilot

3A. Purpose

Ensuring the relative merits of safety features, design standards and service experience are assessed so as to select reliable and resilient aircraft and equipment, suitable for the intended operations.

3B. Expectations

Contracted helicopters are equipped with appropriate flight automation.

3C. Processes and Practices

3C.1 Contracted aircraft have a four-axis Automatic Flight Control System (AFCS)

3C.2 For further information and operational requirements see 690-2 – Aircraft Operations Section 5C.

Other references

- ICAO Annex 6 Chapter 4.4.3
- HeliOffshore Flightpath Management Recommended Practices (HO-FPM-RP-v2.0)
- HeliOffshore Safety Performance Model

4. Emergency Locator Transmitters (ELTs)

4A. Purpose

Ensuring the relative merits of safety features, design standards and service experience are assessed so as to select reliable and resilient aircraft and equipment, suitable for the intended operations.

4B. Expectations

Contracted aircraft are fitted with a compliant automatic fixed or deployable ELT, depending on the regulatory requirements of the operating region.

4C. Processes and Practices

4C.1 The ELTs are compliant with European Technical Standard Order (ETSO) C126b or later approved version;

4C.2 ELT/Crash Position Indicator (CPI) – has a minimum specification of Cosmicheskaya Systyema Poiska Aariynyich Sudov (COPAS)/Search and Rescue Satellite Aided Tracking System SARSAT 406 MHz capable, with an Identification Code registered to the aircraft and operator, GPS capability and can transmit on 121.5/243 MHz;

4C.3 The ELT is registered with the appropriate national agency and the responsible parties registered as ELT contacts are detailed in the aircraft operator's Emergency Response Plan.

Other references

- ICAO Annex 6 Vol 3 Chapter 4.7
- ICAO Annex 10 Vol 3
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

5. Underwater Locator Beacon (ULB)

5A. Purpose

Ensuring the relative merits of safety features, design standards and service experience are assessed so as to select reliable and resilient aircraft and equipment, suitable for the intended operations.

5B. Expectations

Contracted aircraft are fitted with an ULB.

5C. Processes and Practices

5C.1 The ULB has a minimum 90-day battery life and is compliant with ETSO C121b or later approved version.

5C.2 The ULB is attached to the CVR and FDR, or combined CVFDR.

Other references

- ICAO Annex 6 Vol 3 Appendix 4, Chapter 1
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

6. Terrain Awareness Warning System/Helicopter Terrain Awareness Warning System (TAWS/HTAWS)

6A. Purpose

Ensuring the relative merits of safety features, design standards and service experience are assessed so as to select reliable and resilient aircraft and equipment, suitable for the intended operations.

6B. Expectations

Contracted aircraft are fitted with TAWS as a minimum.

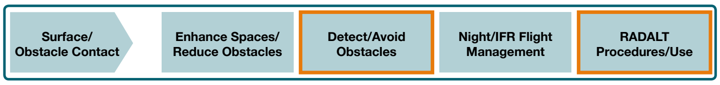
6C. Processes and Practices

6C.1 HTAWS is fitted when available for the aircraft type and region

6C.2 For further information and operational requirements see 690-2 – Aircraft Operations Section 6C

Other references

- ICAO Annex 6 Vol 3 Chapter 5.5
- HeliOffshore Safety Performance Model



7. Airborne Collision Avoidance Systems (ACAS)

7A. Purpose

The prevention of mid-air collisions.

7B. Expectations

Contracted aircraft are fitted with ACAS I.

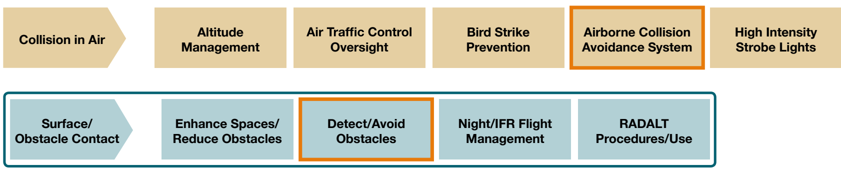
7C. Processes and Practices

7C.1 ACAS II is installed if available and certified for the aircraft type and supported by a Risk Assessment.

7C.2 For operational requirements see 690-2 – Aircraft Operations, Section 7C.

Other references

- BARSOHO Implementation Guidelines v4 7.4
- HeliOffshore Safety Performance Model



8. Helicopter Flight Data Monitoring (HFDM)

8A. Purpose

The use of flight data to obtain operational feedback and reduce risks.

8B. Expectations

Contracted aircraft are fitted with HFDM recording equipment.

8C. Processes and Practices

8C.1 For further information and system requirements see 690-2 – Aircraft Operations, Section 8C

Other references

- HeliOffshore HFDM Recommended Practices (HO-HFDM-RP-v1.0)
- BARSOHO Implementation Guidelines v4 1.2
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

9. Health and Usage Monitoring System (HUMS)

9A. Purpose

Ensuring the early detection of impending critical failures to facilitate timely corrective action.

9B. Expectations

Contracted aircraft have a HUMS system installed, which is OEM supported and meets the documented certification requirements, such as CS-29.1465.

9C. Processes and Practices

9C.1 The HUMS monitor vibration data of the following, using a combination of spectrum analysis and advanced diagnostic (proprietary signal processing) techniques.

9C.2 It includes a diagnostic capability for every dynamic component in the drive train:

- 9C.2.1 Engine to main gearbox input drive shafts
- 9C.2.2 Main gearbox shafts, gears, and bearings
- 9C.2.3 Accessory gears, shafts, and bearings
- 9C.2.4 Tail rotor drive shafts and hanger bearings
- 9C.2.5 Intermediate and tail gearbox gears, shafts, and bearings
- 9C.2.6 Main and tail rotor track and balance
- 9C.2.7 Engine health

9C.3 For further information and system operational requirements see 690-5 – Helicopter and Equipment, Sections 30, 31, 32, 33 and 34.

Other references

- ICAO Annex 6 Vol 3 Chapter 4.15
- HeliOffshore HUMS Best Practice Guide
- EASA CS29.1465
- CAP 753 - Vibration Health Monitoring
- HeliOffshore Safety Performance Model

10. Life rafts

10A. Purpose

Ensuring occupants can survive after a ditching event.

10B. Expectations

Contracted aircraft are fitted with life rafts compliant with ETSO C70 [or ETSO 2C505] sufficient for the maximum number of persons on board.

10C. Processes and Practices

10C.1 Helicopters with a Maximum Operational Passenger Seating Capacity (MOPSC) of 9 or less have at least one life raft certified to carry all aircraft occupants.

10C.2 Helicopters with a MOPSC of 10 or more have two life rafts, each certified for 50% overload to enable any one life raft to be used by all occupants.

10C.3 All life rafts are equipped with an ELT which has COSPAS-SARSAT with an Identification Code registered to the aircraft and operator, 406 MHz, GPS, and transmits on 121.5/243 with voice capability, in addition to an approved offshore survival kit. All loose equipment is attached to the raft with a lanyard.

10C.4 A minimum of one life raft is externally mounted.

10C.5 For external rafts, the primary deployment method is by single action from the normal crew positions; the secondary deployment is from the passenger compartment with the cabin in an upright attitude; and deployment is possible from outside the helicopter when in either an upright or inverted attitude.

10C.6 All life rafts are reversible or self-righting, double chambered, and capable of being tethered to the aircraft and be readily accessible in the event of ditching.

Other references

- ICAO Annex 6 Vol 3 Chapter 4.5.2
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

11. Cabin push-out windows (ditching emergency exits)

11A. Purpose

Ensuring the occupants can escape in the event of a capsize or submersion.

11B. Expectations

Helicopters are fitted with emergency push-out windows in locations suitable for emergency underwater egress.

11C. Processes and Practices

11C.1 Emergency push-out windows and Type IV exits are installed in all locations that are suitable for emergency underwater egress (typically those greater than 430mm by 350mm).

11C.2 Hand holds are provided adjacent to assist the location and operation of emergency exits

11C.3 All push-out windows and Type IV Emergency Exits are clearly highlighted with Helicopter Emergency Escape Lighting (HEEL) – see 690-5 – Helicopter and Equipment, Section 12 – Emergency Exit Lighting.

11C.4 There is a suitable means of opening that is resistant to inadvertent operation and which is suitably marked by placards and contrasting colour(s).

Other references

- ICAO Annex 8 Part II Chapter 6.3
- ICAO Annex 6 Part 3 Ch 9.2
- EASA AMC1 SPA.HOFO.165(h) Additional procedures and equipment for operations in a hostile environment.UK CAA CAP 562 Civil Aircraft Airworthiness Information and Procedures.
- UK CAA CAP 747
- RAF IAM (Report No.528) and University of Loughborough Report on body size for the Joint Aviation Authorities (JAA) in 2001
- HeliOffshore Safety Performance Model

Impact Survival | Flotation | Underwater Escape | Sea Survival | Land/General Survival | Alerting | SAR/Emergency Response | Post-Accident

12. Emergency Exit Lighting

12A. Purpose

Ensuring the occupants can escape in the event of a capsize or submersion.

12B. Expectations

Helicopter Emergency Exit Lighting (HEEL) systems are fitted.

12C. Processes and Practices

12C.1 Emergency exit marking systems which identify emergency escape hatches, exits and push-out windows by illuminating their perimeter (e.g. HEEL path lighting) and is automatically activated following the flooding of the cabin.

Other references

- BARSOHO Implementation Guidelines v4 20.3
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

13. Seating layout

13A. Purpose

Ensuring the occupants can escape in the event of a capsize or submersion.

13B. Expectations

Seat rows are aligned with push out windows or emergency exits.

13C. Processes and Practices

13C.1 Passengers are seated no more than one seat from a push out window or emergency exit.

Other references

- BARSOHO Implementation Guidelines v4 20.3
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

14. Tail camera

14A. Purpose

To improve situational awareness.

14B. Expectations

A forward-facing tail camera is fitted, if available.

14C. Processes and Practices

14C.1 A forward-facing tail camera with presentation of the picture in the cockpit is fitted, where available for the aircraft type.

Other references

- BARSOHO Implementation Guidelines v4 4.2
- HeliOffshore Safety Performance Model

15. Cockpit camera

15A. Purpose

To prevent recurrence of accidents or incidents.

15B. Expectations

A cockpit camera is fitted.

15C. Processes and Practices

15C.1 A cockpit camera, with recording function is fitted, where available for the aircraft type.

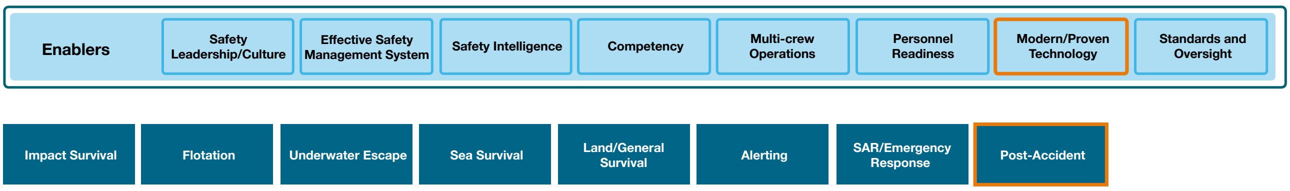
15C.2 Procedures are in place to use the data from cockpit cameras for accident and incident investigation.

15C.3 Procedures are in place to safeguard the recordings and prevent unauthorised use.

15C.4 Maintenance requirements are in place that periodically check the serviceability of the camera system.

Other references

- US National Transportation Safety Board, Safety Recommendation A-00-031: https://www.ntsb.gov/_layouts/ntsb.recsearch/Recommendation.aspx?Rec=A-00-031
- Fact Sheet – FAA's Response to NTSB's "Most Wanted" Safety Recommendations https://www.faa.gov/news/fact_sheets/news_story.cfm?newsId=11186
- Transportation Safety Board of Canada. Air transportation safety investigation A18W0116. https://www.bst-tsb.gc.ca/eng/enquetes-investigations/aviation/2018/a18w0116/a18w0116.html
- HeliOffshore Safety Performance Model



16. Flotation gear

16A. Purpose

Ensuring the aircraft floats after a ditching or survivable water impact.

16B. Expectations

Contracted Aircraft are fitted with automatically deployed floatation equipment.

16C. Processes and Practices

16C.1 Flotation equipment fitted is appropriate to Significant Wave Height (SWH) conditions in the area of operations

16C.2 CAT operations are not conducted with SWH over the ditching certified capability – see 690-2 Aircraft Operations, Section 22C.2.

16C.3 Procedures are in place for Float Arming during offshore flying.

Other references

- ICAO Annex 6 Vol 3 Chapter 4.5.1
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

17. Flight Following

17A. Purpose

Ensuring timely alerting and location identification to aid SAR services.

17B. Expectations

A satellite flight following, or ADS-B system is installed.

17C. Processes and Practices

17C.1 A satellite flight following, or ADS-B system is installed.

17C.2 See 690-2 Aircraft Operations – Section 35.

Other references

- BARSOHO Implementation Guidelines v4 20:6
- Industry recommended practice – ERP Section 2
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

18. Passenger seats

18A. Purpose

Ensuring occupants survive a crash impact.

18B. Expectations

High-back Passenger Seats are fitted with four-point Upper Torso Restraint (UTR) Harnesses

18C. Processes and Practices

18C.1 Seat belts consist of four separate straps.

18C.2 Loop type straps present a snagging hazard and are not used.

Other references

- ICAO Annex 6 Vol 3 Chapter 4.12
- HeliOffshore Safety Performance Model

19. Survival kits

19A. Purpose

Ensuring the occupants can survive either in a raft or in the water.

19B. Expectations

Survival Kits are carried.

19C. Processes and Practices

19C.1 Survival Kits appropriate to the area of operations are carried.

Other references

- ICAO Annex 6 Vol 3 Chapter 4.5.2
- HeliOffshore Safety Performance Model

20. High Intensity Strobe Lights (HISL)

20A. Purpose

Ensuring visibility of the aircraft to all other traffic.

20B. Expectations

High Intensity Strobe Lights (HISL) are fitted, when available.

20C. Processes and Practices

20C.1 May be exempt by risk assessment for low traffic areas.

20C.2 Restrictions are placed on use of HISL on the ground.

Other references

- ICAO Annex 8, Part IV, Chapter 7.4.1
- HeliOffshore Safety Performance Model

21. Obstacle detection aids

21A. Purpose

Ensuring sufficient clearance from obstacles for safe operation.

21B. Expectations

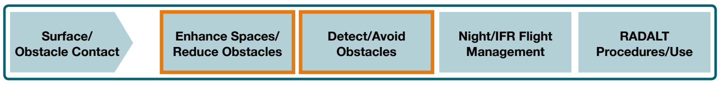
Obstacle detection aids are fitted, if available and necessary.

21C. Processes and Practices

21C.1 Obstacle Detection Aids, where available for the aircraft type and when assessed as appropriate by Risk Assessment are fitted.

Other references

- BARSOHO Implementation Guidelines v4 Section 4.2;
- HeliOffshore Safety Performance Model



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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.

International
Association
of Oil & Gas
Producers

REPORT
690

OCTOBER
2020

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.

Feedback

IOGP welcomes feedback on our reports: publications@iogp.org

REPORT
690

OCTOBER
2020

Offshore Helicopter Recommended Practices

Revision history

VERSION	DATE	AMENDMENTS
1.0	October 2020	First release

Contents

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.

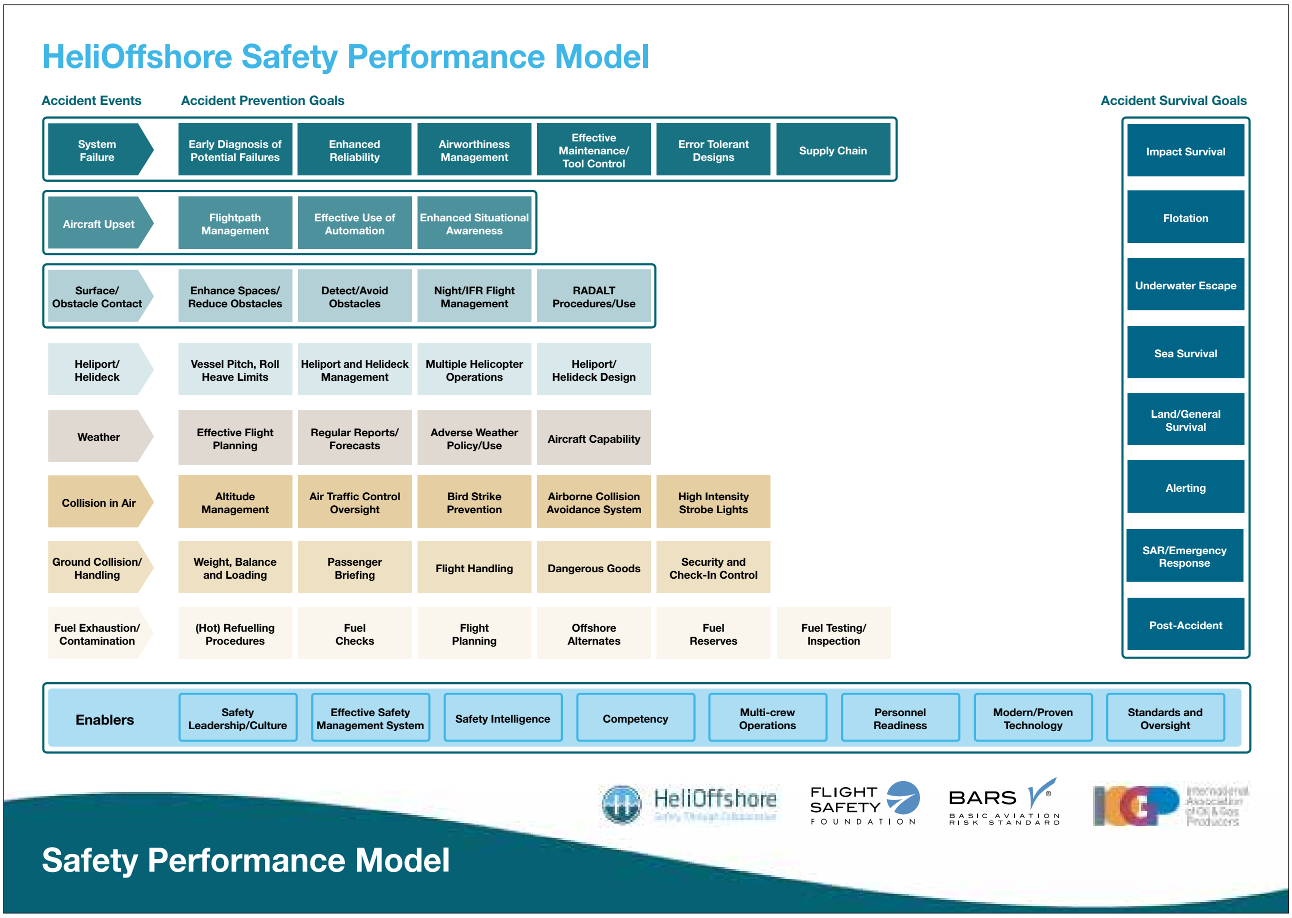


Figure 1: HeliOffshore Safety Performance Model v.4

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 Operations[1]

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 Equipment[2]

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	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: a) A person is fatally or seriously injured as a result of: 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 b) The aircraft sustains damage or structural failure which: 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, windscreens, 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 c) The aircraft is missing or is completely inaccessible *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.*	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: • 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: • 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 150º 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: 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: • 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: • 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 210º 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. *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.*	CAP 437

International Association of Oil & Gas Producers

IOGP REPORT 690-1

Safety Management System

1. Safety Management System - General[1]

1A. Purpose

Ensuring safe operation with all necessary approvals and with an effective system of documented safety management procedures.

1B. Expectations

An effective Safety Management System (SMS) is in place, appropriate to the size and complexity of the organisation and incorporating all elements of 690-1 to manage significant safety risks to ALARP levels.

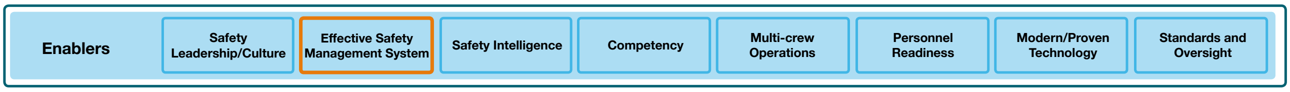
1C. Processes and practices

1C.1 The SMS is compliant with NAA regulatory requirements and meets the intent of ICAO Annex 19, 2nd Edition July 2016 - Appendix 2 - Framework for an SMS, and ICAO Doc 9859, Safety Management Manual (SMM), 4th Edition, 2018, including in those countries where national regulations for SMS are not in place for the class of operation or activity.

1C.2 The SMS interlinks the all of the elements listed in IOGP Report 690-1 – *Safety Management Systems* to allow safety information to circulate freely and continuous improvements to be made.

Other references

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859 Safety Management Manual (SMM)), 4th Edition, 2018
- IOGP Report 510 – *Operating Management System Framework*
- HeliOffshore Safety Performance Model



[1] The term Safety Management System (SMS) has been used for consistency, recognising that some organisations may have system elements contained within a wider integrated Management System (MS).

2. Management Commitment and Leadership

2A. Purpose

Ensuring an organizational culture where the normal behaviour at all levels is risk conscious, safe, promotes learning and collaborative behaviour, and has management commitment and responsibility.

2B. Expectations

Leaders at all levels within the Aircraft Operator:

2B.1 Are accountable for the effective management of the safety risks in their business

2B.2 Demonstrate safety leadership through measurable actions

2B.3 Motivate, coach and develop personnel to manage safety risks effectively

2B.4 Hold individuals accountable for their safety performance and behaviours

2C. Processes and practices

2C.1 Leaders - Know the safety risks associated with their position, responsibilities in the company and how they are managed

2C.2 Take corrective action if the controls for a risk are ineffective

2C.3 Communicate the operator's Safety Policies to their personnel and relevant subcontractors

2C.4 Plan and make base visits to engage with their personnel and relevant sub-contractors about safety

2C.5 Participate in safety activities, team meetings, and safety programmes and campaigns

2C.6 Act as a role model for safety compliance, intervene during day-to-day activities whenever safety requirements are not being met

2C.7 Report safety issues and Near Misses and encourage their personnel to do the same

2C.8 Provide constructive feedback to their personnel on their safety behaviours and performance

2C.9 Evaluate the safety culture within their company regularly

2C.10 Develop their own competence and that of their team in line with company requirements to manage safety risks effectively

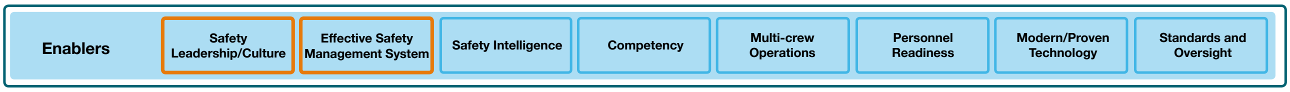
2C.11 Include safety behaviours in decisions about recruitment, performance and personnel development

2C.12 Monitor and reinforce compliance with the company's procedures, applicable laws and regulations and take appropriate action to correct deficiencies

2C.13 Apply Just Culture consequence management for those who break rules and those who create the conditions for rule breaking.

Other references

- ICAO Annex 19 Appendix 2
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- IOGP Report 452 - *Shaping safety culture through safety leadership*
- IOGP Report 453 - *Safety Leadership in Practice: A Guide for Managers*
- IOGP Report 597 - *Fabrication site construction safety recommended practice – Enabling activities*HeliOffshore Safety Performance Model



3. Safety Accountabilities and Responsibilities

3A. Purpose:

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

3B. Expectations:

The aircraft operator has appointed key personnel and with defined accountabilities.

3C. Processes and practices

3C.1 The Accountable Executive has ultimate responsibility and accountability for the implementation, finance, and maintenance of the SMS, irrespective of other functions.

3C.2 The Accountable Executive has authority to ensure all activities can be financed and carried out to the required standard, has final accountability for all safety issues, and has appointed a Safety Manager.

3C.3 Clear lines of safety accountability are in place and documented throughout the organisation, including a direct accountability for safety for all members of management, regardless of other duties, as well as of other staff.

Other references

- ICAO Annex 19 Appendix 2
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for FAA Order 8000.3698
- CASA Part 119.19
- HeliOffshore Safety Performance Model

Enablers	**Safety Leadership/Culture**	**Effective Safety Management System**	**Safety Intelligence**	**Competency**	**Multi-crew Operations**	**Personnel Readiness**	**Modern/Proven Technology**	**Standards and Oversight**

4. Key Safety Personnel

4A. Purpose:

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

4B. Expectations:

Key Safety Personnel have defined competencies.

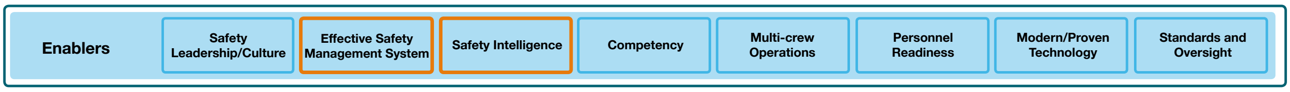
4C. Processes and practices

4C.1 All operational staff, supervisors and management have defined competencies requirements for safety-critical activities and sufficient resources to manage and operate effectively within the SMS.

4C.2 Create appropriate safety committees.

Other references

- ICAO Annex 19 Appendix 2
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 – Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- HeliOffshore Safety Performance Model



5. Emergency Response Planning

5A. Purpose:

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

5B. Expectations:

Emergency response planning is coordinated.

5C. Processes and practices

5C.1 An Emergency Response Plan (ERP) has been established, with country, regional or global ERP to meet the company needs and response objectives covering credible scenarios.

5C.2 The Emergency Response Organisation is staffed to be able to manage credible scenarios.

5C.3 Emergency responders are trained to a competence level to match their roles and responsibilities as outlined in the ERP.

5C.4 ERP process reviews and exercises (at a minimum desktop) with aviation related objectives are conducted prior to commencement of operations, and then on a scheduled basis, at a minimum annually, for ongoing operations.

5C.5 The exercises test the integrity of the ERP by including credible scenarios, such as one of the following scenarios, in each operational base:

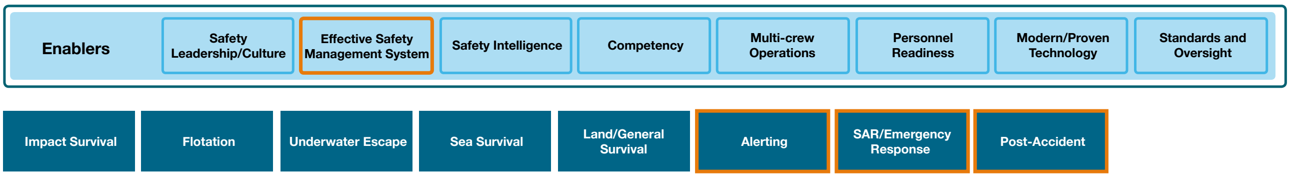
- Accident on arrival or departure
- Overdue Aircraft
- Accident/Ditching enroute
- Helicopter accident on a remote helideck
- Helicopter ditching in rescue range of a facility or vessel

5C.6 A post exercise review process is in place to record exercise learnings and track them to closure.

5C.7 In addition, they test and validate bridging communications between the company, the aircraft operator and all SAR resources.

Other references

- ICAO Annex 19 Appendix 2
- ICAO Doc 9481 Emergency Response Guidance
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- HeliOffshore Safety Performance Model



6. SMS Documentation

6A. Purpose:

To ensure Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

6B. Expectations:

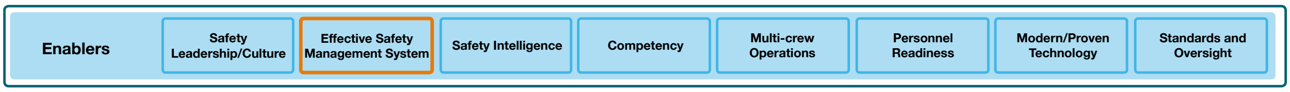
The SMS has documented procedures.

6C. Processes and practices

6C.1 There are documented, detailed procedures covering all SMS activities and processes, as well as more broadly documented procedures for safety critical activities related to aircraft operations, including flight operations, aircraft maintenance and ground operations.

Other references

- ICAO Annex 19 Appendix 2
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- HeliOffshore Safety Performance Model



7. Safety Risk Assessment and Hazard Identification

7A. Purpose:

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

7B. Expectations:

The aircraft operator has established Hazard and Risk Management (HRM) system.

7C. Processes and practices

7C.1 A Hazard and Risk Management system (HRM) is documented that reflects the size and complexity of the operator.

7C.2 The HRM identifies actual and potential safety hazards, occurrences, assesses the associated risks and includes consideration of human performance, safety culture and threat and error management.

7C.3 The HRM identifies and address generic, mission specific, and location specific hazards.

7C.4 All the hazards identified are assessed using the company's Risk Assessment process, and the assessment of these risks is documented in a Hazards and Effects Register. A demonstration is provided, within a documented format or software system, that all identified hazards are assessed, tracked, mitigated, and managed to ALARP. This demonstration: shows the risk assessment rating assigned to each identified hazard; links high rated hazards to specific barriers and controls in an appropriate manner (e.g., Bow Ties); provides a document reference for the barriers and controls if said measure is procedural or training; and assigns a responsible department or job title to each barrier or control – controls identified for location specific hazards are to be assigned local responsibility.

7C.5 The HRM is demonstrably linked to the operators Safety Reporting and Investigation process.

7C.6 A Remedial Action Plan is in place to close identified gaps.

Other references

- ICAO Annex 19 Appendix 2
- IOGP Report 510 – Operating Management System Framework
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- UK CAA CAP795 Safety Management Systems – Guidance to Organisations
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

8. Incident Reporting, Investigation and Learning

8A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

8B. Expectations

Safety reporting procedures are in place.

8C. Processes and practices

8C.1 Safety reporting procedures are in place covering all regulatory and non-regulatory reports, including the reporting of lower level incidents or occurrences, hazards and near-miss events. These procedures and the systems in place allow for anonymous reporting.

8C.2 Reporting is encouraged and tools are provided to personnel to proactively report any incident, occurrence, hazard, error, or near-miss event they become aware of, as soon as possible.

8C.3 Incidents are reported to the Company as detailed in its contract and the Operator allows access for investigations when agreed.

8C.4 All incidents are assessed using the company's Risk Assessment process.

8C.5 The investigation process is aligned with ICAO Annex 13, Aircraft Accident and Incident Investigation, uses trained investigators, reviews the effectiveness of the Hazard Risk Management (HRM) barriers and generates recommendations.

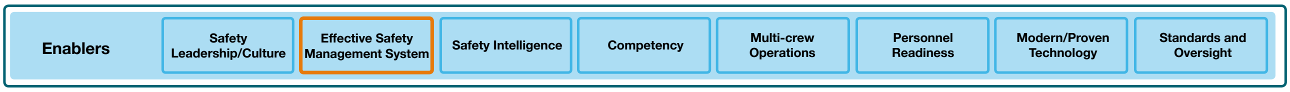
8C.6 The recommendations are tracked to closure, any modified controls or barriers identified are put in place, and a feedback process to the reporter and to the organisation is included.

8C.7 A process is in place to learn from significant and high potential incidents through communication and implementation of required actions.

8C.8 Safety occurrences are shared with relevant industry safety bodies and as part of it continuous improvement, the organisation uses safety events from the industry as part of its HRM analysis process.

Other references

- ICAO Annex 19 Appendix 2
- ICAO Annex 13 – Aircraft Accident and Incident Investigation - Standards and Recommended Practices for aircraft accident and incident Investigation
- UK CAA CAP 795 – Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- IOGP Report 510 – *Operating Management System Framework*
- HeliOffshore Safety Performance Model



9. Safety Performance Monitoring

9A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

9B. Expectations

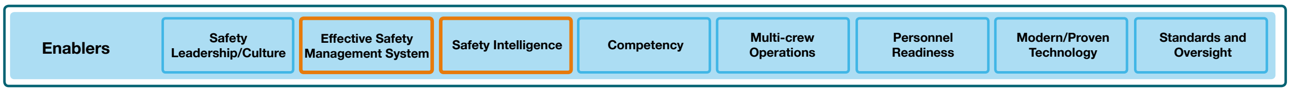
The aircraft operator measures the safety performance of the organisation.

9C. Processes and practices

Safety Performance Indicators (SPIs) are established to monitor and measure the safety performance of the organisation, and the effectiveness of the SMS for continuous improvement.

Other references

- ICAO Annex 19 Appendix 2
- UK CAA CAP 795 – Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- IOGP Report 510 – *Operating Management System Framework*
- HeliOffshore Safety Performance Model



10. Management of Change

10A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

10B. Expectations

There is an effective Management Of Change (MOC) process.

10C. Processes and practices

10C.1 A defined MOC procedure is in place to manage the risks associated with significant changes related to aircraft operations, including key personnel.

10C.2 The MOC identifies changes that introduce new hazards, or impact the effectiveness of the existing barriers or controls in the HRM Process and includes a process to track the effectiveness of the actions

Other references

- ICAO Annex 19 Appendix 2
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

11. Continuous Improvement - Assurance

11A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

11B. Expectation

A Quality Assurance (Compliance Monitoring) system is in place

11C. Processes and practices

11C.1 A Quality Assurance (QA) system, in addition to, or in the absence of NAA requirements, covering flight operations, maintenance activities, ground operations, the SMS and HRM is developed, documented, and implemented.

11C.2 A QA Manager is appointed.

11C.3 The QA system details a programme of risk-based audits using trained personnel, independent from the activities to be audited

11C.4 The audit programme covers internal processes, specialised activities, such as HFDM and HUMS, as well any externally contracted operations or activities.

11C.5 The QA system monitors compliance with, and the effectiveness of, the risk barriers and controls detailed in the operator's published HRM or Safety Case.

11C.6 A functioning records/data management system which also tracks all audits, non-compliances and corrective actions, to closure is in place

11C.7 Performance indicators are tracked to monitor the effectiveness of the QA system.

Other references

- ISO 9001: 2015, Quality Management Systems
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 – Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.19
- CASA Safety Management System resource kit: Booklet 3 - Safety Risk Management
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

12. Training and Education

12A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

12B. Expectations

Key Safety Personnel are trained and educated to understand the SMS.

12C.Processes and practices

12C.1 Operational staff understand the organisation's safety policy and the principles and processes of the organisation's SMS

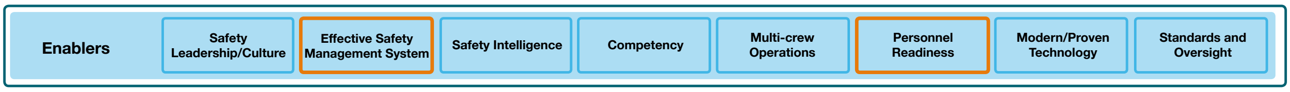
12C.2 Managers and supervisors understand the safety process, hazard identification, risk management and the management of change.

12C.3 The accountable manager has an awareness of SMS roles and responsibilities, safety policy, safety culture, SMS standards, and safety assurance.

12C.4 Staff have initial induction and recurrent training to ensure continued competence appropriate to the level of involvement in the SMS

Other references

- ICAO Annex 19 Appendix 2
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 – Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- HeliOffshore Safety Performance Model



13. Safety Communication

13A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

13B. Expectations

Safety information monitored, shared and reviewed by Management.

13C. Processes and practices

13C.1 Safety Commitment and Policy Documents, based on Just Culture, are in place;

13C.2 There is a range of safety promotion and communication processes to enable an effective, two-way flow of information.

13C.3 There are formal meetings where all staff can engage in discussion on safety topics either directly or through appropriate representation.

13C.4 There is a yearly management review process is based on a defined hierarchy of meetings and it gives senior managers visibility of the SMS activity, in particular:

- Safety reporting and performance (KPI and SPI)
- The effectiveness of the HRM process
- Issues arising from the aircraft operator's Quality Assurance process

13C.5 Safety information is disseminated via newsletters, safety bulletins, etc.

Other references

- ICAO Annex 19 Appendix 2
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 – Safety Management Systems (SMS) guidance for organisations
- FAA Order 8000.3698
- CASA Part 119.190
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

14. Line Operations Safety Audit

14A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

14B. Expectation

The aircraft operator has a structured Line Operations Safety Audit (LOSA) programme.

14C. Processes and practices

14C.1 The LOSA programme complies with ICAO Doc 9803.

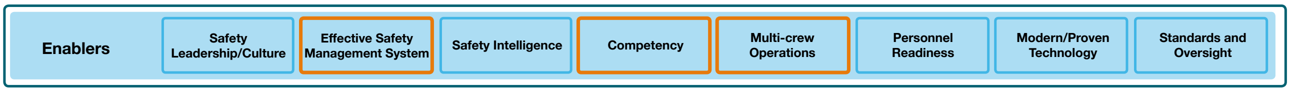
14C.2 The LOSA data is analysed and appropriate action plans implemented.

14C.3 LOSA observations are conducted periodically and a full observation cycle is conducted at a minimum every three years.

14C.4 FDM and LOSA observations are analysed collectively for added insight.

Other references

- FAA AC120-90
- ICAO Doc 9803
- HeliOffshore Safety Performance Model



15. Environmental Management

15A. Purpose

The prevention of damage to the environment and personnel.

15B. Expectation

The Aircraft Operator has Environmental management controls in place to prevent damage to the environment and people from pollution, waste, noise, etc.

15C. Processes and practices

15C.1 The hazards associated with the environment have been captured in the hazard and risk management process and the associated controls are in place.

15C.2 The environmental management controls follow local and/or national regulatory requirements

Other references

- ISO 14001 Environmental Management System
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

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IOGP REPORT 690-2

Aircraft Operations

1. Air Operator Certificate

1A. Purpose

Ensuring operation with all necessary approvals and with an effective system of documented operational procedures.

1B. Expectations

The aircraft operator holds a valid Air Operator Certificate (AOC) or equivalent, issued by the responsible regulatory authority, that covers the aircraft type(s), all aspects of the type of operation and the geographic area relevant to the contract. The AOC includes up-to-date Operations Specifications.

1C. Processes and Practices

1C.1 The aircraft operator has a suite of Operations Manuals with the necessary content, approved (or when applicable, accepted) by the responsible regulatory authority. This may be in one or more volumes and include or be supported by appropriate procedures. The Operations Manual covers normal and emergency operations and is suitable for the operational circumstances and the aircraft types operated.

1C.2 The aircraft operator demonstrates to the responsible regulatory authority that its management team, organisational structure, method of control and supervision of flight operations, training programs, ground handling, airworthiness and production arrangements meet the minimum standards defined by local regulations.

Other references

- ICAO Annex 6 Part 3 2.2 Operational Certification and Supervision
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

2. Management of personnel

2A. Purpose

Ensuring operation with all necessary approvals and with an effective system of documented operational procedures.

2B. Expectations

The aircraft operator has competent and experienced personnel in key management positions.

2C. Processes and Practices

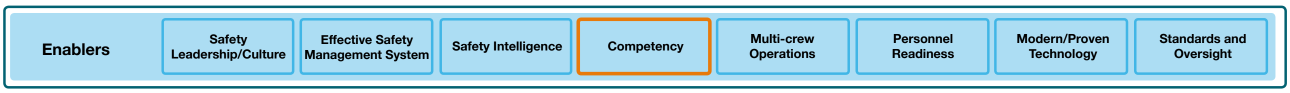
2C.1 The aircraft operator has the following management and operational positions

- 2C.1.1 The Accountable Manager for the Air Operators Certificate.
- 2C.1.2 A person with overall responsibility for managing the flight department
- 2C.1.3 A person responsible for managing flight training.
- 2C.1.4 A person responsible for safety and quality assurance.
- 2C.1.5 A person or third party responsible for managing continuing airworthiness requirements and aircraft maintenance.
- 2C.1.6 A person responsible for managing ground operations (appropriate to the size of the operator).
- 2C.1.7 Where the organisation has more than one operating base, the management structure addresses the required responsibilities at all locations.

2C.2 The aircraft operator has a documented procedure for the assessment of competence and experience for the above management and operational positions.

Other references

- ICAO Annex 6 Part 4.2.1.3
- HeliOffshore Safety Performance Model



3. Insurance

3A. Purpose

To provide protection against the risk of financial resulting loss from a safety event and to correctly apportion potential liabilities.

3B. Expectations

The aircraft operator holds the necessary insurance coverage for its operations.

3C. Processes and Practices

3C.1 The aircraft operator has the required insurance coverage as specified by the Company throughout the period of the contract.

3C.2 The Company is named as an additional insured party under the policy.

Other references

- HeliOffshore Safety Performance Model

4. Drug and Alcohol policy

4A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

4B. Expectations

The aircraft operator has a documented policy on the use/abuse of alcohol, medicines, and narcotics.

4C. Processes and practices

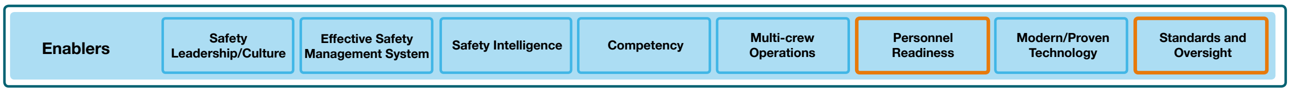
4C.1 The policy establishes a pre-hire, post-accident, for cause, and random testing policy and is compliant with national legislation.

4C.2 The policy defines an acceptable level of alcohol consumption for staff in safety-critical roles, including an alcohol-free period before duty.

4C.3 The policy provides guidance on which over-the-counter and prescribed medication can impair an individual's ability to perform in the cockpit or workplace.

Other references

- BARSOHO Implementation Guidelines v4 1.6
- HeliOffshore Safety Performance Model



FLIGHT OPERATIONS

5. Automation

5A. Purpose

Ensuring controlled flight can be sustained with, or without, the use of automation.

5B. Expectations

The aircraft operator has defined automation procedures.

5C. Processes and Practices

5C.1 The automation procedures contain requirements for the appropriate use of automation to reduce cockpit workload and increase standardisation.

5C.2 The automation procedures are defined for all phases of flight.

5C.3 Type-specific procedures for the use of automation are based on those published in the Flight Crew Operating manual (FCOM).

5C.4 The policy includes procedures for manual flight control to maintain flight proficiency including those conditions under which automation systems may be deselected and manual flight undertaken.

5C.5 The Minimum Equipment List (MEL) has clear requirements for the AFCS to be serviceable for night or IFR flights.

5C.6 For equipment details, see 690-5 - *Equipment Fit*, Section 3C.1

Other references

- BARSOHO Implementation Guidelines v4 Section 3.2 - Effective use of Automation.
- HeliOffshore Flightpath Management Recommended Practices (HO-FPM-RP-v2.0)
- HeliOffshore Safety Performance Model

6. Terrain Awareness Warning Systems (TAWS)

6A. Purpose

The prevention of Controlled Flight into Terrain (CFIT) accidents.

6B. Expectations

The aircraft operator has documented procedures for the use of TAWS and Helicopter Terrain Awareness Warning Systems (HTAWS).

6C. Processes and practices

6C.1 Flight crew SOPs and training includes the response to TAWS/HTAWS alerts.

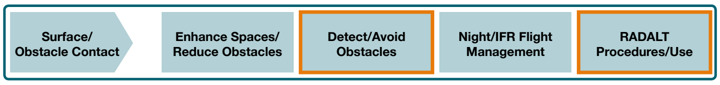
6C.2 If available and certified for the type, offshore modes are installed.

6C.3 There is a process to ensure that the latest version of the database for predictive terrain hazard warnings is installed.

6C.4 For equipment details, see 690-5 - *Equipment Fit*, Section 6C

Other references

- BARSOHO Implementation Guidelines v4 Section 3.2 - Effective use of Automation.
- HeliOffshore Safety Performance Model



FLIGHT OPERATIONS

7. Airborne Collision Avoidance Systems

7A. Purpose

The prevention of mid-air collisions.

7B. Expectations

The aircraft operator has documented procedures for the use of ACAS.

7C. Processes and practices

7C.1 Clear instructions and procedural guidance for crews is documented.

7C.2 Flight crew training includes the response to ACAS alerts.

7C.3 For equipment details see 690-5 - *Equipment Fit*, Section 7C.1

Other references

- BARSOHO Implementation Guidelines v4 Section 7.4 - Collision in the Air.
- HeliOffshore Safety Performance Model

8. Helicopter Flight Data Monitoring

8A. Purpose

The use of flight data to obtain operational feedback and reduce risks.

8B. Expectations

A Helicopter Flight Data Monitoring (HFDM) programme is in place.

8C. Processes and practices

8C.1 A Helicopter Flight Data Monitoring (HFDM) programme is established, documented, and aligned with the HeliOffshore HFDM Recommended Practices (HO-HFDM-RP-v1.0).

8C.2 Personnel are appointed to fill specific positions within the HFDM programme (such as analyst, gatekeeper or pilot liaison) and training is provided for all personnel appropriate to their responsibilities.

8C.3 HFDM data is downloaded from all aircraft daily as a minimum and a process for the review of the data is in place.

8C.4 HFDM event thresholds are implemented based on flight manual limitations, flight profiles, and Standard Operating Procedures (SOP):

- 8C.4.1 Data is analysed for threshold exceedance events daily (operational flight days) through either operator in-house data analysis or third-party services.
- 8C.4.2 At least three levels of operational risk for each event (Low, Medium, and High) are set and assessed.
- 8C.4.3 Medium and High operational risk events which require Flight Crew contacts are validated.
- 8C.4.4 Tracked Flight Crew contacts are made for every Medium and High operational risk HFDM event.
- 8C.4.5 For those events assessed as Medium operational risk, the crew contact, is at a minimum, an advisory contact by email or other means, to alert the Flight Crew of the event.
- 8C.4.6 For those events assessed as High operational risk, a more comprehensive contact is made, which involves a meeting between the pilot liaison and the Flight Crew involved.
- 8C.4.7 Trend monitoring of events, including Low operational risk events, as a routine part of the HFDM process, is in place.

8C.5 A process for communication and reporting of the HFDM data is established.

8C.6 A serviceability policy for both airborne and ground station equipment has been established.

- 8C.6.1 System unserviceability is not to exceed 25 flight hours between data downloads.

FLIGHT OPERATIONS

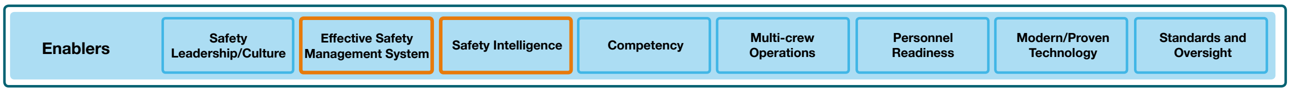
8C.7 The data download rate as a Key Performance Indicator (KPI) is tracked and the target is 95%.

8C.8 An HFDM review group meets at regular intervals to:

- 8C.8.1 Validate the reports, including a periodical review of de-identified HFDM data findings.
- 8C.8.2 Investigate significant events identified by the HFDM Programme.
- 8C.8.3 Reviews KPIs and trends.
- 8C.8.4 Make recommendations for suggested changes to operational procedures or the training syllabus and tracks their implementation.
- 8C.8.5 Periodically determine the effectiveness of thresholds.

Other references

- HeliOffshore HFDM Recommended Practices (HO-HFDM-RP-v1.0)
- UK CAA CAP 739 – Flight Data Monitoring
- FAA AC 120-82 - Flight Operational Quality Assurance
- BARSOHO Implementation Guidelines v4 1.2
- HeliOffshore Safety Performance Model



FLIGHT OPERATIONS

9. Helicopter performance class[1]

9A. Purpose

Ensuring flight operations and continuing airworthiness choices minimise the risk of critical failures and provide assurance of safe outcomes during all engine failure modes.

9B. Expectations

All CAT operations to offshore destinations are carried out in PC1, PC2E, PC2DLE, or PC2.

9C. Processes and practices

9C.1 Onshore take-offs, departures, approaches, and landings for the purpose of carrying passengers are conducted in accordance with PC1 criteria, unless specific circumstances dictate the use of PC2 criteria and then only when a safe forced landing can be assured in the event of a critical power unit loss.

9C.2 When performance planning for offshore take-offs, departures, approaches and landings, there is no exposure to deck edge strike or to a forced landing in the event of a critical power unit loss.

9C.3 The RFM PC1/PC2/PC2DLE/PC2e flight profiles are used, both onshore and offshore as appropriate[2].

Other references

- ICAO Annex 6 Part III Attachment A
- HeliOffshore Safety Performance Modele

[1] For definitions of performance classes, see Definitions, and for basic certification requirements, see 690-5 – Helicopter and Equipment Section 1 – Certification Standards.

[2] It is acceptable to vary from flight profiles if published in the Operations Manual provided that the aircraft mass is in accordance with the approved performance data.

FLIGHT CREW

10. Crew - Personal Protective Equipment

10A. Purpose

Ensuring crew are suitably dressed for the environment.

10B. Expectations

Crew have suitable Personal Protective Equipment (PPE) for the environment.

10C. Processes and practices

10C.1 All crew wear lifejackets meeting ETSO-2C504 with Personal Locator Beacons (PLBs) and Compressed Air Emergency Breathing Systems (CA EBS).

10C.1.1 PLBs with 121.5MHz, GPS and 406MHz capability, Advanced Automatic Identification System (AIS) are desirable

10C.1.2 PLBs are assessed for compatibility with the aircraft ELT

10C.2 Immersion suits are worn when required by regulation or by contract

10C.2.1 Immersion suits meet ETSO-2C502 or ETSO-2C503 or national aviation authority approved TSO and which have been tested for compatibility with the lifejacket.

Other references

- ETSO-2C502
- ETSO 2C503
- BARSOHO Implementation Guidelines v4 20.4 – Sea Survival
- HeliOffshore Safety Performance Model

11. Flight Crew - Experience and Qualification

11A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

11B. Expectations

11B.1 Pilots are licensed and current in accordance with national regulatory requirements.
11B.2 Pilots (contracted and subcontracted) meet the required experience and qualification levels.

11C. Processes and practices

11C.1 Flight crew demonstrate the specified experience and qualification levels by one of three methods:

- Method 1 - Ab-Initio Entry Competency Based-Programme
- Method 2 - Commercial Pilot License (CPL) Entry Competency-Based Programme
- Method 3 - Experienced Flight Crew – Alternative requirements

Operator Processes - General

11C.2 The operator demonstrates compliance with the chosen method through its training and assurance processes and is able to demonstrate to the Company, on audit and on request, that:

11C.2.1 There is a formal, modular, competency-based progression scheme for pilots from basic (ab initio/new hire/conversion) to command and for aircraft type conversion, (see Method 1 below), based on the specifications in Table 1 and the pilot aircraft conversion syllabus in 690-2, Section 45 - Pilot aircraft conversion syllabus and minimum hours.

11C.2.2 The content of the training syllabus, including comprehensive ground and flight training, particularly for entry at the CPL stage (see Method 2 below), is based on regulatory training schemes.

11C.2.3 There is a formal command progression scheme for pilots from ab initio to command, including Crew Resource Management (CRM) and simulator programmes including Line Oriented Flight Training (LOFT).

11C.2.4 Training records demonstrate a structured command course, competencies to be achieved and the associated checking process.

11C.2.5 There is a process for the selection, training, and designation of LTCs

11C.2.6 Base and Line training staff have defined competencies and these staff themselves are regularly checked.

11C.2.7 The programme being offered meets FAA and/or EASA regulatory requirements standards at the highest level of flight training.

FLIGHT CREW

Method 1 - Ab-Initio Entry Competency Based-Programme

11C.3 For Ab-Intio entry a pilot commences the programme at Table 1 – Stage 1 and follows the defined stages.

Method 2 - Commercial Pilot License (CPL) Entry Competency-Based Programme

This is designed for pilots that hold a CPL, but are still to attain the flying hours specified in Table 2. Pilots enter the programme at Table 1 – Stage 4.

11C.4 When a candidate is selected to enter with a CPL the following conditions apply:

11C.5 Individual aptitude testing is completed in accordance with Table 1 - Stage 1

11C.6 The candidate holds an ATPL theory qualification.

11C.7 Full training records are held for the CPL training including records of stage and final check flights, and total hours are validated by the training provider.

Table 11-1: Ab initio and CPL Competency-based programme (See Notes 1,4,5)

Stage	Subject	Content
1 Ab-Inito Entry	Detailed pilot aptitude testing required prior to enrolment in the programme	Testing includes evaluation of language skills, cognitive abilities, hand-eye coordination, ability to apply theory and team coordination, etc.
2	CPL(H) training at approved flight training organisation (FTO) (See Note 1)	ATP theory required for operations on multi-pilot helicopters
3	IR(H) training at approved FTO	IR(H) Course completed successfully
4 CPL Entry	CPLH/IR(H)	Individual may pass the entry process for operator *ab initio* programme with CPL or can enter programme with CPL as result of structured recruitment process
5	Operator training programme	Multi Pilot Type Rating Course Multi Crew Co-operation Course (See Note 3) Type IR Course Operator Conversion Course - A/C and FS Flight tests by different TRE Combined VMC Licence Skill Test and OPC Type IR Skill Test
6	Non-revenue offshore deck landing training by day and night with TRE	WDD and HUET Training Minimum 5 day and 5-night deck landings Competence check for release to Line Training Minimum 5 flight hours
7	Line Training Ground Course	GPS training Flight Planning Dangerous Goods training Simulator line flight or jump seat line familiarisation.
8	Line flying under supervision of a Line Training Captain (LTC)	Minimum 10 offshore landings by day and night Progress report required for all flights.
9	Line check as co-pilot by different LTC	Includes an offshore landing and take-off.
10	Released to line	Ab initio pilots and CPL(H) holders with less than 1000 hours – with any commander who has no less than 500 hours PIC time including 100 hours on type Day only unless fully night qualified.

FLIGHT CREW

Stage	Subject	Content
11	Progressive monitoring online as First Officer (FO)	2 qualifying flight reports per month with a Training Captain or LTC Recurrent training and OPC/LPC checks 6-monthly progress reviews with training staff Written records of above elements Can be released to any PIC when has 500 hours
12	Promotion to Senior FO	Approximately at the 2-year point – promotion board or management evaluation with CP, CTC SLTC. Monitoring continues as above
13	Command Course (at approximately the 4-year point)	Minimum requirements – ATPLH, helicopter. May time as PICUS gained in accordance with the Operator's procedures Technical exam RHS checks FS or FTD 3 Training and Assessment CRM assessment Command Line Training Command Line Check by different LTC.
14	Promotion to Command	Initially only qualified to fly in command with co-pilots who have 500 hours total experience including 100 hours on type until the new commander has accumulated 500 hours in command.

Table notes

1. The State approved flight training school(s) and curriculum are to EASA/FAA or equivalent standards.
2. For details on the Multi Crew Co-operation Courses refer to EASA approved flight training establishments.
3. The programme meets FAA and/or EASA standards.
4. Detailed training records are maintained for all phases of the training programme.
5. These records reflect the results of each training session and include the standards to which the pilot was able to complete the exercise or flight requirement.

Method 3 - Experienced Flight Crew – Alternative requirements

11C.8 If an operator training programme does not support the Method 1 Ab-Initio Entry or Method 2 CPL - Entry programmes above, the experience levels in Tables 2 and 3 apply.

Table 11-2: Aircraft Commander and Co-pilot qualifications

Qualification	Experience
Total hours previous 90 days (See note 1)	50 hours of which at least 10 on type
Medical certificate appropriate for license	Current
Instrument rating	Current; OPC at 6-monthly intervals
Night offshore recency previous 90 days	3 cycles (See notes 2 & 3)
CRM or ADM, initial/refresher	Annual
Dangerous Goods awareness	Every 2 years or in accordance with local regulatory requirements
Offshore experience	One year
Helicopter Underwater Escape Training (HUET)	Every 4 years

Table 2 Notes:

1. If hours are not met, a line check (which maybe a normal revenue flight) is conducted by a Line Training Captain.

2. One-night cycle consists of a night take-off, approach and landing to an offshore location. A simulator of the same type or series being flown may be used to meet the night recency requirements, provided this is acceptable under national legislation, and it has the visual fidelity to replicate landing on an offshore facility.

FLIGHT CREW

Table 11-3: Helicopter pilot experience and qualification levels

Qualifications and experience	FAR / CS 29	FAR / CS 27
Pilot in Command (PIC)		
License	ATPL(H)	ATPL(H)
Instrument rating (see Table 2)	Current	Current
Total hours helicopter (1,2,4)	3,000	2,000
Total hours in command (1,3)	1,500	1,000
Total hours in command Multi-Engined (1, 3)	1,200	500
Total hours in similar aircraft complexity	500	500
Total hours in command on contract type	100	100
Co-Pilot		
License	CPL(H)	CPL(H)
Instrument rating (see Table 1.6.2)	Current	Current
Total hours	500	500
Total hours Multi Engined (1,3)	500	250
Total hours in command (1)	100	100
Total hours on contract type (1)	50	50

Table 3 Notes:

1. These hours to be fully on helicopters. Up to 10% may be achieved in a flight simulator approved for the purpose by the regulatory authority.
2. These hours include a minimum of 25 hours of night offshore time.
3. For PICUS requirements see Section 12; Co-pilots who do not meet 100-hour captain experience may be used provided that each co-pilot has successfully completed the following training which is documented in the pilot's training records:
   - An approved type rating course for the aircraft type
   - A technical, emergencies and CRM course or Operator Proficiency Check at the appropriate type-specific flight simulator prior to commencing operational flying
   - 50 hours of operational line flying with an approved Training Captain
   - A successful Line Check flight by a different Check and Training Captain
4. Total hours may be reduced by 1000 hrs when total hours in aircraft of similar complexity exceeds 1000 hrs and no dispensation has been granted for the other Commander qualification requirements.

Other references

- BARSOHO Implementation Guidelines v4 CE 1.4 and Appendix 1
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

12. Flight crew experience - Pilot In Command Under Supervision (PICUS) Flight Time

12A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

12B. Expectations

Co-pilots are permitted to log PICUS time to meet the requirements of command time in Tables 1.6.2 and 1.6.2.

12C. Processes and practices

12C.1 In those countries where the regulator has an allowance for logging these hours, the operator uses the approved national programme.

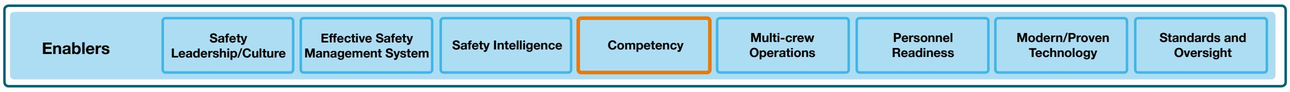
12C.2 The logged time as PICUS meets the requirements of 1.6.2 and 3, provided:

12C.2.1 the operator has control and supervision over the programme

12C.2.2 the flight time is recorded in the pilot's training records

Other references

- HeliOffshore Safety Performance Model



FLIGHT CREW

13. Medical certification

13A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

13B. Expectations

All pilots hold a valid medical certificate appropriate to their age and licence (e.g., CPL, ATPL) requirements.

13C. Processes and practices

13C.1 The local National Aviation Authority and/or company policy determines the frequency of medical examinations.

Other references

- ICAO Annex 1 Chapter 6
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

FLIGHT CREW

14. Use of subcontracted pilots

14A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

14B. Expectations

The aircraft operator may use subcontracted pilots subject to certain conditions.

14C. Processes and practices

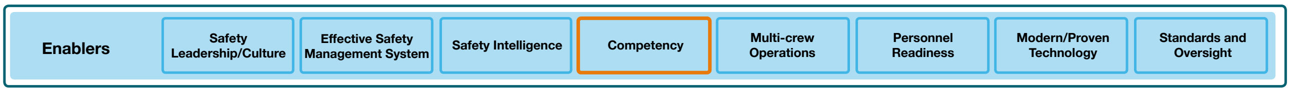
14C.1 Subcontracted pilots meet all the operators flying qualification and experience level requirements

14C.2 Licence Proficiency Checks (LPC) or Operational Proficiency Checks (OPC) (or equivalent) conversion training is in accordance with national regulations. If time between engagements exceeds time between required OPCs, the operator's absence and recency requirements also apply to the subcontracted pilots – see 690-2, Section 40 .

14C.3 Subcontracted pilots inform the aircraft operator of all their flight and duty times.

Other references

- BARSOHO Implementation Guidelines v4 1.6
- HeliOffshore Safety Performance Model



FLIGHT CREW

15. Pilots flying more than one aircraft type

15A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

15B. Expectations

Pilots may fly more than one type subject to certain conditions

15C. Processes and practices

15C.1 The aircraft operator has a written policy on the subject, which applies across their operations, and which complies with national legislation.

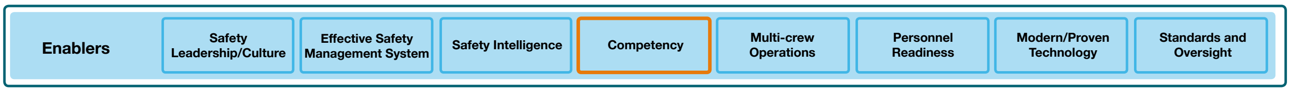
15C.2 The policy includes the requirement for the pilot to maintain recency and proficiency on those types on which he is permitted to fly Commercial Air Transport (CAT).

15C.3 Recency and proficiency on multiple types is closely monitored.

15C.4 The aircraft operator schedules pilots to fly only one type in any one day or block of days and normally limits flying a maximum of two types or significantly different variants in any one day.

Other references

- HeliOffshore Safety Performance Model



FLIGHT CREW

16. Composition of flight crew

16A. Purpose

Ensuring flight crew handling and monitoring duties are appropriately divided, defined, and conducted in line with human factors principles

16B. Expectations

Aircraft are appropriately crewed for the task and environment.

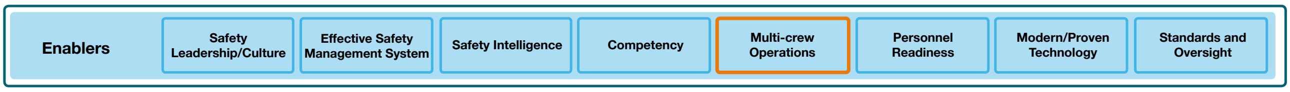
16C. Processes and practices

16C.1 Two pilots operate the aircraft.

16C.2 The aircraft operator has procedures outlining the duties and responsibilities of all flight crew members, specifically 'Pilot Flying' and 'Pilot Monitoring' roles and tasks are defined.

Other references

- ICAO Annex 6 Vol 3 Chapter 7
- HeliOffshore Safety Performance Model



FLIGHT CREW FATIGUE MANAGEMENT

17. Flight crew fatigue management - Flight time limits

17A. Purpose

Ensuring flight crew personnel are alert and fit-for-work.

17B. Expectations

The aircraft operator has established limits for flight times.

17C. Processes and practices

17C.1 Additional restrictions may be required for particularly demanding flights, such as offshore shuttling, or for operations in locally high ambient temperatures.

17C.2 Maximum flight times meet the criteria in the table 17-1:

Table 17-1: Maximum flight times

Period (consecutive days)	1	7	28	365
Maximum flight time in period for dual-pilot crew (hours)	10	45	120	1200

Other references

- ICAO Annex 6 Vol 3 Chapter 2.8
- ICAO Doc 9966
- ICAO Annex 6 Vol 3 Appendix 6
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

18. Flight crew fatigue management - Flight duty times and rest periods

18A. Purpose

Ensuring flight crew personnel are alert and fit-for-work.

18B. Expectations

The aircraft operator has established limits for flight crew duty times

18C. Processes and practices

18C.1 The maximum FDP is 14 hours.

18C.2 This includes administrative/office time, flight planning, flight preparation, flight time, post flight duties, completion of any associated maintenance or paperwork.

18C.3 The operations manual defines when the duty day starts and ends and how the FDP is calculated.

18C.4 The minimum rest period is 10 hours, or the length of the preceding FDP, whichever is the greater.

18C.5 When an extension to the FDP is necessary, the air operator will have implemented a Fatigue Risk Management System (FRMS).

Other references

- ICAO Annex 6 Vol 3 Chapter 2.8
- ICAO Doc 9966
- ICAO Annex 6 Vol 3 Appendix 6
- ICAO Fatigue Risk Management System (FRMS) Implementation guide for operators
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

19. Flight crew fatigue management – Rest for rotating crews

19A. Purpose

Ensuring the flight crew are suitable rested for the type of operation.

19B. Expectations

The aircraft operator has established a rest policy for rotating crews, if applicable.

19C. Processes and practices

19C.1 Crews on rotating assignments that arrive following prolonged or overnight travel, or travel exceeding four time zone changes, are not rostered for flying duties until the minimum ten-hour rest period is met.

Other references

- ICAO Annex 6 Vol 3 Chapter 2.8
- ICAO Doc 9966
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

20. Flight crew fatigue management – Night standby duty

20A. Purpose

Ensuring the flight crew are suitable rested for the type of operation.

20B. Expectations

The aircraft operator has established a policy for night standby duty, if applicable.

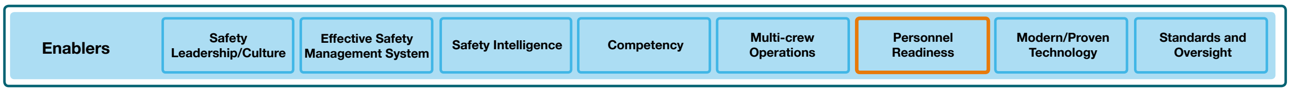
20C. Processes and practices

20C.1 After a day duty period, each pilot has at least 12 hours rest prior to being rostered for night standby duty.

20C.2 Pilots nominated for night standby duty (at their place of rest) who are not called out to fly, may be considered available for duty in the following day period. If the pilots are called out to fly during the night, they have a minimum of 12 hours rest after completion of their FDP.

Other references

- ICAO Annex 6 Vol 3 Chapter 2.8
- ICAO Doc 9966
- HeliOffshore Safety Performance Model



AVIATION WEATHER

21. Aviation weather - IFR/VFR

21A. Purpose

Establishing weather limitations consistent with the capabilities of the aircraft and rescue assets are applied to each flight, with provision for appropriate training in anticipated conditions.

21B. Expectations

All CAT flights are conducted under IFR when possible.

21C. Processes and practices

21C.1 IFR operations comply with local regulatory IFR weather minima unless more stringent Company requirements are issued.

21C.2 The flight may be conducted under VFR, if this is a safer option, or when IFR flight is not possible

21C.3 VFR minima are described in table 21-1

Table 21-1: Offshore VFR minima

	Minimum operating height (Feet)	Cloud Base (Feet)	Visibility (Meters)	Specific Requirements
Day	500	600 (See note 1)	5000	ICAO Minima
	300	400	2000 (See note 2)	Offshore inter-field use only if sector is less than 10nm
Night	500	600	5000 (See note 3)	Offshore inter-field use only if sector is less than 10nm

Notes:
1. Minimum cloud base may be reduced to 500ft subject to NAA approval
2. Minimum visibility may be reduced to 800m subject to NAA approval
3. Minimum visibility may be reduced to 1500m subject to NAA approval

Other references

- ICAO Annex 6 Part 3 Chapter 2.3.5
- HeliOffshore Safety Performance Model

22. Aviation weather - Adverse weather policy

22A. Purpose

Establishing weather limitations consistent with the capabilities of the aircraft and rescue assets are applied to each flight, with provision for appropriate training in anticipated conditions.

22B. Expectations

An Adverse Weather Policy has been developed by the company in conjunction with the aircraft operator.

22C. Processes and practices

22C.1 An Adverse Weather Policy is in place which has been developed by the company in conjunction with the aircraft operator.

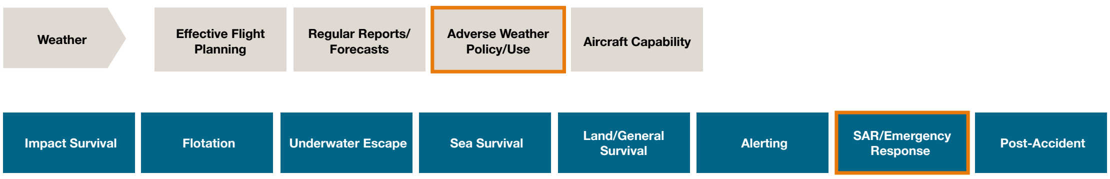
22C.2 The Adverse Weather Policy clearly states under what conditions flying operations are be restricted or temporarily halted and is supported by appropriate procedures. Situations include:

- Excessive wind over helidecks prohibiting personnel movement to and from the helicopter;
- Adverse sea conditions resulting in an unacceptable risk of immediate capsize, or preventing effective offshore search and rescue available for the area of operations;
- Significant Wave Height (SWH) over the ditching certified capability of the helicopter, see 690-5 – *Equipment Fit* – Section 16C.2.

22C.3 It considers the aircraft type and survival equipment in use, the available SAR capability and applicable Emergency Response Plans and is revised when material changes to these considerations occur.

Other references

- ICAO Annex 6 Vol 3 Attachment A 3.3.3
- HeliOffshore Safety Performance Model



23. Helidecks - Helideck landing limits

23A. Purpose

Ensuring a safe envelope for vessel movements to enable a safe landing and stability when on the helideck.

23B. Expectations

The aircraft operator has established pitch, roll and heave limits for helideck operations.

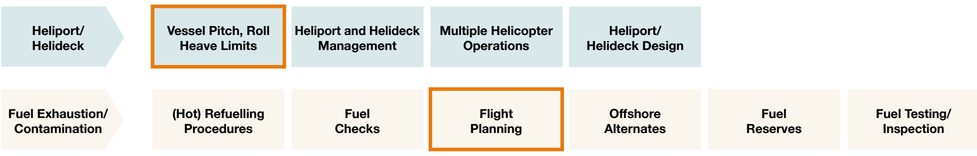
23C. Processes and practices

23C.1 Unless approved to operate to other national limits, the limits in the Helideck Certification Agency's Helideck Limitations List Part C are used: http://www.helidecks.org/download%20files/HLL%20-%20Part%20C%20-%20p%20r%20h.pdf

23C.2 These limits are only applicable for landing, not for takeoff.

Other references

- UK CAA CAP 437
- Helicopter Safety Advisory Committee (HSAC) Recommended Practices (RP) 163 – 2nd Edition (January 2020)
- Helicopter Safety Advisory Committee – Helideck RPs
- ICS Guide to Helicopter-Ship Operations Chapters 3.7.3, 4.2.3
- HeliOffshore Safety Performance Model



24. Helidecks - Measurement of helideck motion

24A. Purpose

Ensuring a safe envelope for vessel movements to enable a safe landing and stability when on the helideck.

24B. Expectations

The aircraft operator only operates to moving helidecks when the reported motion is within limits for the helicopter.

24C. Processes and practices

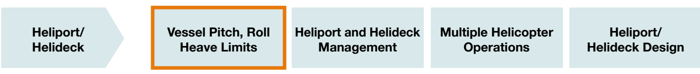
24C.1 When mandated by local operating requirements, and otherwise where available, electronic deck motion and wind monitoring equipment is used that meets the latest requirements of CAP 437 or an equivalent standard.

24C.2 The helideck motion and wind information is available to and used by pilots for pre-flight planning and updated information is passed to the crew before landing, and at any time there is a significant change in conditions (see 690-2 Section 25 - Significant change in helideck conditions) The flight crew must verify that the reported helideck motion is within limits before landing.

24C.3 When a vessel gives clearance for a helicopter to land on deck, the vessel intends to maintain the existing heading while the helicopter remains on the deck. The monitoring station providing deck motion limits and wind data is manned during the entire time the helicopter is operating on the deck.

Other references

- CAP 437
- HSAC RP 163 – 2nd Edition (January 2020)
- ICS Guide to Helicopter-Ship Operations Chapters 3.7.3, 4.2.3
- Helideck Certification Agency - Helideck Limitations List Part C
- HeliOffshore Safety Performance Model



FLIGHT OPERATIONS – HELIDECKS

25. Helidecks - Significant change in helideck conditions

25A. Purpose

Ensuring a safe envelope for vessel movements to enable a safe landing and stability when on the helideck.

25B. Expectations

The helicopter flight crew are informed if there are any significant changes to helideck conditions.

25C. Processes and practices

25C.1 The helicopter crew are notified immediately by radio if any of the following occurs:

- 25C.1.1 The vessel goes off heading by 10° or more
- 25C.1.2 There is a vessel/installation or station keeping/handling problem
- 25C.1.3 Helideck Motion exceeds the limits in the Helideck Certification Agency's Helideck Limitations List Part C or other national limits
- 25C.1.4 There is a significant change in the relative wind of 30° or more
- 25C.1.5 The monitoring equipment indicates a red deck
- 25C.1.6 There is any other abnormal event

Other references

- CAP 437
- Helicopter Safety Advisory Committee (HSAC) Recommended Practices (RP) 163 – 2nd Edition (January 2020)
- ICS Guide to Helicopter-Ship Operations Chapters 3.7.3, 4.2.3
- Helideck Certification Agency - Helideck Limitations List Part C
- HeliOffshore Safety Performance Model

Heliport/ Helideck | Vessel Pitch, Roll Heave Limits | Heliport and Helideck Management | Multiple Helicopter Operations | Heliport/ Helideck Design

FLIGHT PLANNING

26. Flight planning

26A. Purpose

Ensuring that a safe and efficient flight can be conducted.

26B. Expectations

The aircraft operator has established flight planning procedures.

26C. Processes and practices

26C.1 Flight planning procedures take account of:

26C.1.2 The configuration and serviceability of the helicopter, including MEL items

26C.1.3 Weather conditions and performance

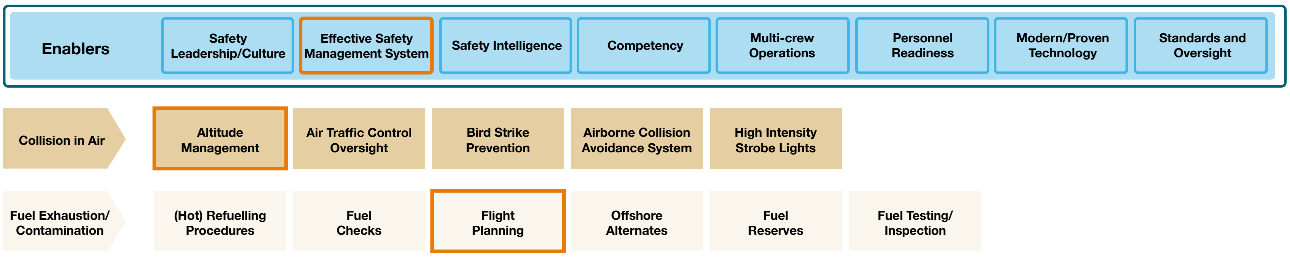
26C.1.4 Routing, manifest, fuel requirements and weight and balance

26C.1.5 Destination(s) and alternates

26C.1.6 Preparation of an operational flight plan

Other references

- CAP 437
- ICS Guide to Helicopter-Ship Operations Chapters 3.7.3, 4.2.3
- Helideck Certification Agency - Helideck Limitations List Part C
- HeliOffshore Safety Performance Model



FLIGHT PLANNING

27. Fuel planning

27A. Purpose

Ensuring aircraft depart with sufficient fuel reserves to avoid fuel exhaustion.

27B. Expectations

The aircraft operator has established flight planning procedures.

27C. Processes and practices

27C.1 Fuel planning for an IFR flight includes:

- 26C.1.1 Fuel used during start-up and taxi
- 26C.1.2 Fuel required for the route to the first point of intended landing
- 26C.1.3 Fuel required for ground running on helideck or helipad
- 26C.1.4 Fuel required for the route to onshore alternate heliport or offshore helideck
- 26C.1.5 Contingency fuel as defined by the NAA, plus 30 minutes final reserve

27C.2 Fuel planning for VFR offshore flights includes:

- 27C.2.1 Fuel used during start-up and taxi
- 27C.2.2 Fuel required for the route to the first point of intended landing
- 27C.2.3 Fuel required for ground running on helideck or helipad
- 27C.2.4 Fuel required for the route to an onshore alternate heliport or offshore helideck, plus 30 minutes

Other references

- ICAO Annex 6 Vol 3 Chapter 2.8
- HeliOffshore Safety Performance Model

28. Offshore alternates - Planning

28A. Purpose

Ensuring offshore alternates are only used when OEI performance and alternative decks are guaranteed.

28B. Expectations

The aircraft operator has a documented policy on the use of offshore alternates, if applicable.

28C. Processes and practices

28C.1 Offshore installations are only used as alternates in exceptional circumstances and when agreed by the company. The following minimum requirements are applied before use of offshore alternates is approved:

- 28C.1.1 There is a procedure in the operations manual for the use of offshore alternates, and that procedure has been approved or accepted by the NAA
- 28C.1.2 A Point of No Return (PNR) is established:
  - 28C.1.2.1 Before the PNR, an onshore alternate is available
  - 28C.1.2.2 The PNR is within 30 minutes planned flying time from the destination calculated by using en-route weather reports
- 28C.1.3 OEI landing capability is assured at the alternate
  - 28C.1.3.1 The use of an offshore alternate is restricted to helicopters that can achieve OEI IGE hover at an appropriate power rating at the offshore alternate.
  - 28C.1.3.2 Where the surface of the offshore alternate helideck, or prevailing conditions (especially wind velocity), precludes an OEI IGE hover, OEI OGE hover performance at an appropriate power rating is used to compute the landing weight.
  - 28C.1.3.3 The landing weight is calculated from data provided in the aircraft flight manual. When calculating this landing weight, account is taken of helicopter configuration, environmental conditions and the operation of systems that have an adverse effect on performance.
  - 28C.1.3.4 The planned landing weight of the helicopter, including 30 minutes of final reserve fuel, will not exceed the OEI landing mass at the time of approach to the offshore alternate.
- 28C.1.4 Deck availability is guaranteed.
  - 28C.1.4.1 The dimensions, configuration and obstacle clearance of individual helidecks or other sites is assessed in order to establish operational suitability for use as an alternate by each helicopter type used.

FLIGHT PLANNING

28C.1.4.2 In addition, the duty holder of the nominated offshore alternate must have guaranteed the availability of the deck (no other planned helicopter operations, a clear deck, and no crane operations) before the flight may be dispatched.

28C.1.5 The weather forecast for the offshore destination and offshore alternate is suitable.

28C.1.5.1 When use of an offshore alternate is planned, a helideck is not planned as a destination or offshore alternate unless the weather forecast indicates that, at ETA ±1 hour, the weather conditions will be at or above the planning minima shown in table 28-1:

Table 28-1: Weather Minima

	Day	Night
Cloud Base	600 Ft	1000 Ft
Visibility	4000 m	5000

28C.1.5.2 Where fog is forecast, or has been observed within the last two hours within 60 NM of the destination or alternate, offshore alternates are not be used.

28C.1.6 When an offshore alternate is planned, the meteorological observations at the destination and alternate, are taken by a qualified observer, or AWOS acceptable to the NAA.

28C.1.7 The helicopter MEL reflects essential requirements for this type of operation and there are no open defects relating to MEL items required for the use of offshore alternates.

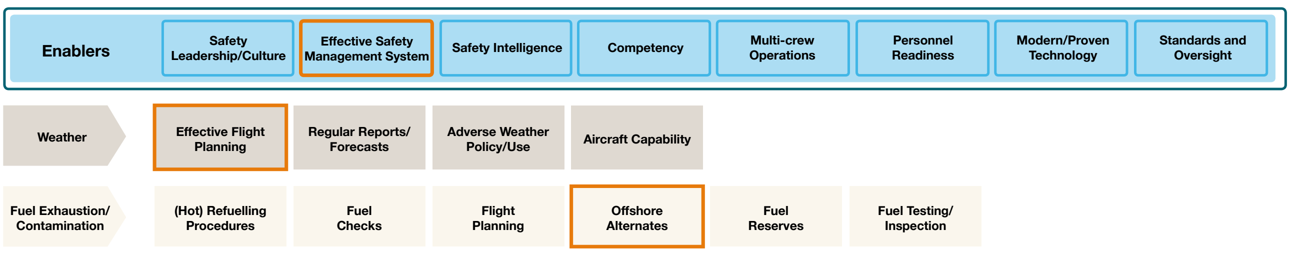
28C.1.8 Any spare payload capacity is used to carry additional fuel, if it would facilitate the use of an onshore alternate.

28C.1.9 The installation selected as suitable for nomination as an offshore alternate must have an approved aircraft refuelling capability with all recent serviceability and fuel testing checks completed.

28C.1.10 Mechanical reliability of critical control systems and critical components are considered when determining the suitability of the alternate.

Other references

- ICAO Annex 6 Vol 3 Chapter 2.7.2
- HeliOffshore Safety Performance Model



FLIGHT PLANNING

29. Offshore alternates - Execution

29A. Purpose

Ensuring offshore alternates are only used when OEI performance and alternative decks are guaranteed.

29B. Expectations

The aircraft operator has a documented policy on the use of offshore alternates, if applicable.

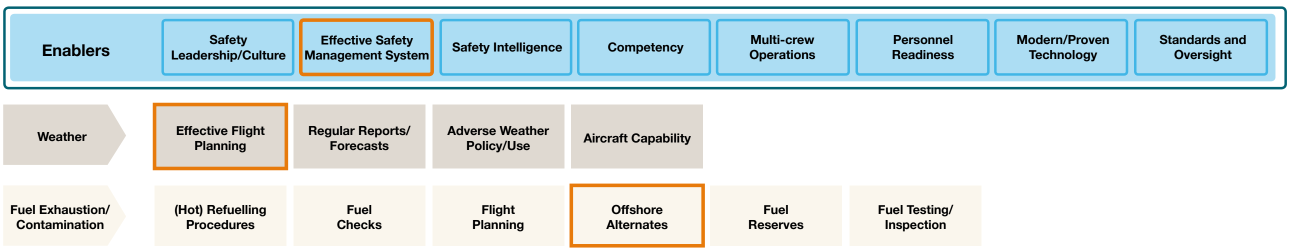
29C. Processes and practices

29C.1 Before passing the PNR, the following actions are completed:

- 29C.1.1 Confirmation that navigation to the destination and offshore alternate is assured.
- 29C.1.2 Radio contact with the destination and offshore alternate (or responsible radio operator) has been established.
- 29C.1.3 The landing forecast at the destination and offshore alternate has been obtained and confirmed to be above the required minima as listed in Table 28.1.
- 29C.1.4 The requirements for an OEI landing have been checked to ensure that they can be met.
- 29C.1.5 The availability of the offshore alternate has been guaranteed by the duty holder (rig operator for fixed installations and the owner for mobiles or vessels) until landing at the destination, or the offshore alternate, has been achieved (or until offshore shuttling has been completed).

Other references

- ICAO Annex 6 Vol 3 Chapter 2.7.2
- HeliOffshore Safety Performance Model



30. Flight procedures – General

30A. Purpose

Ensuring a safe flightpath with early identification of deviations and timely corrective action.

30B. Expectations

The aircraft operator has developed appropriate flight procedures.

30C. Processes and practices

30C.1 Flight procedures (SOP or Operations Manual) are used by the aircrew in the performance of their duties, referencing the FCOM if available. These procedures include cockpit procedures, use of checklists, automation policy, and crew monitoring procedures including confirmation of actions, mode settings, aircraft responses and deviation calls. The procedures are described concisely so that aircrew will recognise and act on deviations from standards in a timely manner.

30C.2 FDM or FOQA programs are used to monitor trends regarding these procedures.

30C.3 The use of CRM/TEM/ADM, crew responsibilities including pre-flight planning, adverse weather avoidance, arming of flotation gear, awareness of potential birdstrike risk, and care of passengers are defined and understood by aircrew.

Other references

- ICAO Annex 6 Vol 3 Appendix 7
- HeliOffshore Safety Performance Model

FLIGHT PROCEDURES

31. Flight procedures – Sterile cockpit

31A. Purpose

Ensuring a safe flightpath with early identification of deviations and timely corrective action.

31B. Expectations

The aircraft operator has established a sterile cockpit policy.

31C. Processes and practices

31C.1 There is a sterile cockpit policy covering, as a minimum, restrictions on unnecessary conversation, use of EFBs or PEDs, and paperwork, during flight below key altitudes, and during certain phases of flight or ground operations.

Other references

- Industry Recommended Practice
  - FAA CFR 121.542
  - EASA Part ORO.GEN.110(f)
- HeliOffshore Safety Performance Model

32. Flight procedures – Stabilised Approaches

32A. Purpose

Ensuring a safe flightpath with early identification of deviations and timely corrective action.

32B. Expectations

The aircraft operator has established stabilised approach procedures.

32C. Processes and practices

32C.1 Stabilised approach procedures are documented that define when to conduct a missed approach or abort a landing if deviation criteria for a stabilised approach are not met.

32C.2 The procedures are written with reference to the HeliOffshore Flightpath Management Recommended Practices (HO-FPM-RP-v2.0);

32C.3 Stabilised approach procedures are specific to the aircraft type or use a TC Holder issued Flight Crew Operating Manual (FCOM).

32C.4 Procedures are characterised by defined speeds, climb/descent rate, vertical flight-path and configuration, through a series of defined 'gates' as necessary.

32C.5 Stabilised approach criteria confirm that:

- 32C.5.1 The aircraft is on the correct flight path and only requires small changes in heading, attitude and power to remain on the correct flight path.
- 32C.5.2 The aircraft is in the correct landing configuration and all briefings and checklists have been conducted.
- 32C.5.3 The power setting is appropriate for the aircraft configuration, not below the manufacturer's minimum if specified in the Aircraft Flight Manual or Flight Crew Operating Manual (FCOM).
- 32C.5.4 Flight crew procedures include monitoring of the flight path and the requirement to announce deviations and subsequent actions using specified criteria.

32C.6 Unique approach procedures or abnormal conditions that require a deviation from stabilised approach criteria require a special briefing.

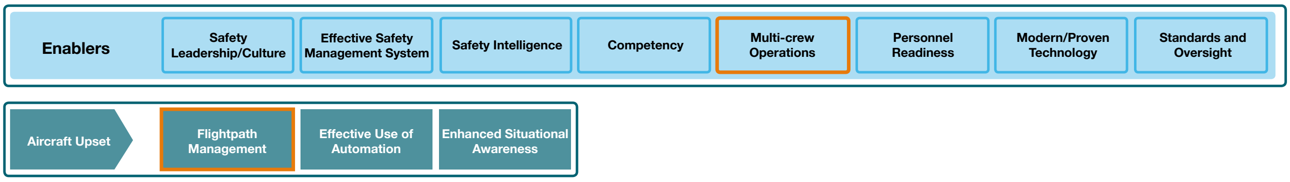
32C.7 Procedures are in place for no-fault, mandatory go-arounds if any approach not be stabilised, and pilots practice all-engine operating (AEO) go-arounds as part of their proficiency training.

32C.8 The aircraft operator uses HFDM analysis, within its SMS to assist with the identification of specific risks in the conduct of flight procedures.

FLIGHT PROCEDURES

Other references

- Industry Recommended Practice
  - ICAO PANS OPS Vol 1 (Flight Procedures)
  - ICAO Global Runway Safety Action Plan
- HeliOffshore Flightpath Management Recommended Practices (HO-FPM-RP-v2.0)
- HeliOffshore Safety Performance Model



FLIGHT PROCEDURES

33. Flight procedures – Assessment of wrong deck landing risk

33A.Purpose

Ensuring a safe flightpath with early identification of deviations and timely corrective actions.

33B.Expectations

The aircraft operator has established a procedure for flight crew to confirm the location of offshore destinations.

33C. Processes and practices

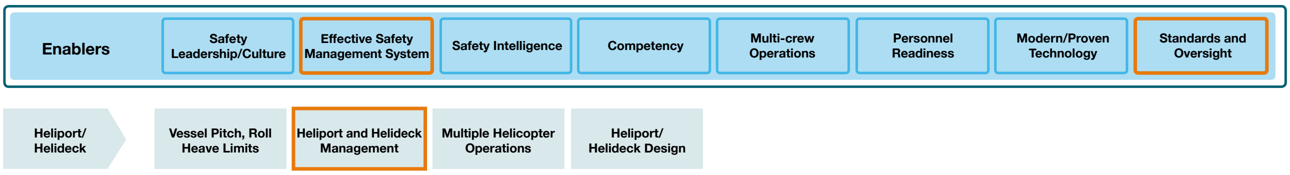
33C.1 There is a process to identify the relative risk (high, medium, or low) of a wrong deck landing at a particular destination or vessel during flight planning. This process considers factors such as the location of mobile installations and vessels, proximity of adjacent decks, physical similarity of adjacent installations or vessels, similarity in naming conventions, etc.

33C.2 Procedures are in place to review this risk during all pre-flight briefings and discuss in pre-landing briefings (unless the risk in that area is continuously low).

33C.3 There are procedures in the operations manual/normal checklists for verification of the destination position and facility name when approaching all vessels and installations.

Other references

- Industry Recommended Practice
  - CAP 437
  - UK Health and Safety Executive Report OTO 2000/067 Review Of Wrong Helideck Landings, Status Lights and Signalling Lamps
- HeliOffshore Wrong Deck Landings Research and Investigation Report
- BARSOHO Section 3.3 - Assessment of Wrong Deck Landing Risk
- HeliOffshore Safety Performance Model



34. Pre-flight and post-flight procedures

34A. Purpose

Ensuring the aircraft is correctly prepared for flight and any defects are properly recorded.

34B. Expectations

The aircraft operator has established procedures for the use of the aircraft technical log and MEL.

34C. Processes and practices

34C.1 Flight Crew responsibilities for the use of the MEL and ATL are clearly defined.

34C.2 The aircraft is prohibited from departure with a defect that has not been processed in accordance with the MEL.

34C.3 Flight crews record all defects after every flight.

34C.4 A protocol is in place for flight crew to debrief maintenance personnel post-flight.

Other references

- ICAO Annex 6 Vol 3 2.5.4
- HeliOffshore Safety Performance Model

35. Flight following

35A. Purpose

Ensuring timely alerting and location identification to aid SAR services.

35B. Expectations

The aircraft operator has established flight following procedures.

35C. Processes and practices

35C.1 A satellite flight following system is installed that records aircraft position when the aircraft is outside an effective Air Traffic Control (ATC) surveillance service (Radar, Voice or Automatic Dependent Surveillance – Broadcast (ADS-B)).

35C.2 Satellite position reporting frequency is a maximum interval of two minutes

35C.3 When satellite tracking is in use, the aircraft's position is shown on a monitor which is in direct view of trained operations personnel who keep the aircraft under constant surveillance during the whole flight.

35C.4 When the aircraft is not under ATC surveillance, Contractor's flight following personnel are able to initiate the Emergency Response Plan if required. There is a reliable means of direct communication available between the aircraft and flight follower throughout the flight. Activation of an Emergency Response Plan will occur in event of distress or loss of communications.

35C.5 When the aircraft is not under ATC surveillance and the satellite flight following system is inoperative, procedures are in place for regular "ops normal" calls at least every 15 minutes. Such calls include heading, speed, position and are recorded in a log.

35C.6 Job descriptions are documented that include the roles and responsibilities for flight following positions, the associated training requirements, and the process by which their ongoing competencies are assured. The documented training requirements adequately address management of the flight following function in both normal and emergency operations.

Other references

- Industry Recommended Practice
  - ICAO Global Aeronautical Distress & Safety System (GADSS)
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

FLIGHT PROCEDURES

36. Perforation operations

36A. Purpose:

Ensuring that helicopter operations do not compromise the safety of perforating operations.

36B. Expectations:

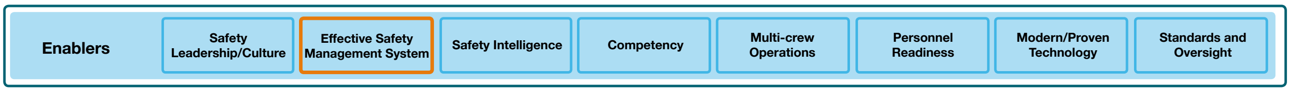
Helicopter operations are prohibited during perforating operations.

36C. Processes and practices

36C.1 The aircraft operator respects the 500m safety zone and radio silence when perforating operations are in progress.

Other references

- HeliOffshore Safety Performance Model



37. Birdstrike avoidance

37A. Purpose:

Ensuring effective bird control measures are in place to minimise bird strikes.

37B. Expectations:

The aircraft operator has established procedures to minimise the risk of birdstrikes.

37C. Processes and practices

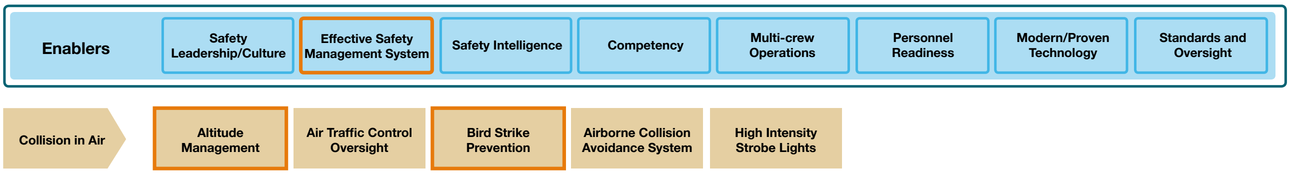
37C.1 Aircraft routing considers bird sanctuaries, known nesting areas, and migratory bird paths as far as practical.

37C.2 In area where bird strike risk is identified defined, speed limits according altitude are be documented.

37C.3 Flight crews are aware of bird avoidance techniques.

Other references

- HSAC-RP 2010-3 Rev 1
- HeliOffshore Safety Performance Model



FLIGHT PROCEDURES

38. Cabin area cargo

38A. Purpose:

Ensuring the accurate and safe aircraft loading within approved limits.

38B. Expectations:

Cabin area cargo is correctly secured.

38C. Processes and practices

38C.1 Cargo carried inside the passenger compartment is adequately secured and does not obstruct normal or emergency exits;

38C.2 Cargo carried in the cabin is subject to approval by the Company.

Other references

- ICAO Annex 6 Vol 3 Chapter 2.3.e
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

39. Flight crew training – Records and programmes

39A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

39B. Expectations:

The aircraft operator maintains training documentation for flight crew.

39C. Processes and practices

39C.1 Comprehensive training documentation is maintained, including details of training programmes and the required training frequency.

Other references

- ICAO Annex 6 Vol 3 Chapter 7.4.2.4
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

40. Flight crew training – Reorientation flight after absence

40A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

40B. Expectations:

The aircraft operator has a documented training programme for flight crew

40C. Processes and practices

40C.1 Pilots fly a 'reorientation' flight after an absence from flying for a period of 45 days or longer, to enable them to be refamiliarised with the operational environment. The flight may be conducted on a revenue flight or in an Level C or Level D FFS (or type -specific Type III, IV or V devices as described in ICAO Doc 9625 Vol 2) with an instructor, line training captain, or an experienced line pilot approved by the base chief pilot monitoring the flight.

Other references

- ICAO Annex 6 Vol Chapter 7.4.1
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

FLIGHT CREW TRAINING

41. Flight crew training – Recurrent training and Maintenance Check Flights

41A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

41B. Expectations:

The aircraft operator has established a recurrent training programme for flight crews.

41C. Processes and practices

41C.1 All pilots receive annual recurrent training to the standards of the NAA, and flight checks every six months. These flight checks include an annual instrument rating proficiency check/renewal (where applicable), a six-monthly OPC which includes emergency drills, and an annual LPC.

41C.2 Where distinct climatic seasons exist, training is related to seasonal changes.

41C.3 Before being scheduled for flight duties in a new location, all crewmembers undergo at least a documented orientation line check, including a review of local procedures and policies.

41C.4 Before being scheduled for Maintenance Check Flights crew receive appropriate training, see 690-5 - Engineering, Section 18 – Maintenance Check Flights.

Other references

- ICAO Annex 6 Vol 3 Chapter 7.3.1
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

FLIGHT CREW TRAINING

42. Flight crew training – 90-day recency

42A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

42B. Expectations:

The aircraft operator has established a recency requirement for flight crews.

42C. Processes and practices

42C.1 Pilots fly a total of 50 hours in the preceding 90 days to maintain recency. Hours in a Level C or Level D FFS (or type -specific Type III, IV or V devices as described in ICAO Doc 9625 Vol 2) may be included in this total. If the requirement is not met, a line check (or LPC/OPC) is carried out by an LTC (or TRE/TRI) – Note 1.

42C.2 In cases where 90-day minimum requirements cannot be met due to low contracted flight hours, a risk assessment with appropriate mitigation is presented to the Company.

Note 1: A line check (which may be a normal revenue flight) is conducted by a line training captain at least annually as part of the recurrent training program. It can also be used for other purposes, such as resetting currency after a time of absence.

Other references

- ICAO Annex 6 Vol 3 Chapter 7.3.1
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

FLIGHT CREW TRAINING

43. Use of Flight Simulation Training Devices – General

43A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

43B. Expectations:

Flight Crews conduct training in suitable FSTDs.

43C. Processes and practices

43C.1 Flight crews are to seated at their normal flight control stations to receive credit for simulator time.

43C.2 FSTDs include landing area visual simulations that are representative of those being used by the operator, including for example, helideck visuals with markings representative of those being used in daily operations.

43C.3 Instructors can communicate effectively with the trainees.

43C.4 Where differences exist between the aircraft and training devices (e.g., equipment fit, software version), a gap analysis is conducted, and suitable mitigations applied.

Other references

- ICAO Doc 9625 Vol 2
- HeliOffshore Safety Performance Model

FLIGHT CREW TRAINING

44. Use of Flight Simulation Training Devices – Devices

44A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

44B. Expectations:

Flight Crews conduct training in suitable FSTDs every 6 months

44C. Processes and practices

44C.1 Aircrew undergo training in an approved FSTD at a frequency of at least every 6 months. Level C or Level D FFS (or type -specific Type III, IV or V devices as described in ICAO Doc 9625 Vol 2) are used where available for the type.

44C.2 Where an FFS or ICAO 9625 equivalent is not available for the aircraft type or where the configuration of the FFS is not sufficiently representative of the contracted commercial aircraft, FTDs may be used in accordance with the following guidelines:

- 44C.2.1 FTD Level 3 or equivalent for medium rotorcraft above 3175 kg (7,000 lb).
- 44C.2.2 FTD Level 2 for small rotorcraft with a maximum weight of 3175 kg (7,000 lb) or less and certified with nine or less passenger seats.
- 44C.2.3 The FSTD training syllabus incorporates LOFT scenarios and Threat and Error Management (TEM) training, including those emergencies that cannot be practised in the air.

Other references

- ICAO Doc 9625 Vol 2
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

45. Pilot aircraft conversion syllabus and minimum hours

45A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skillS, and experience.

45B. Expectations:

The aircraft operator has a documented type conversion syllabus.

45C. Processes and practices

45C.1 Commanders have at least 100 hours on type and co-pilots have at least 50 hours on type.

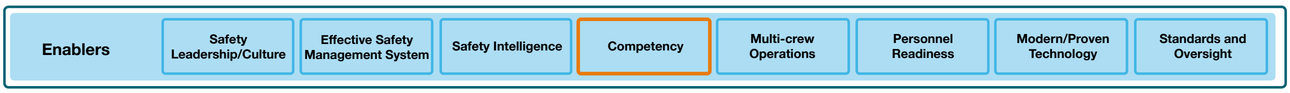
45C.2 When new types are introduced into service, or when changing to alternate types, operations are permitted with fewer hours, provided the crews have followed an integrated structured training programme for the initial type rating.

45C.3 The programme is approved by the NAA and is run either by the OEM or by an approved and licenced ATO; if applicable, it includes time spent in an FSTD.

45C.4 The hours to be achieved during type conversion or an initial type rating (including any initial conversion training) is agreed with the company.

Other references

- ICAO Annex 6 Vol 3 Chapter 7.3
- HeliOffshore Safety Performance Model



46. Other training - Crew Resource Management

46A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

46B. Expectations:

The aircraft operator has a Crew Resource Management (CRM) training programme in place.

46C. Processes and practices

46C.1 A CRM training programme is in place, with initial and annual refresher training.

46C.2 The annual CRM refresher is carried out either as ground instruction or as part of the annual line check.

Other references

- Industry recommended practice
  - EASA ORO.FC.115 Crew resource management (CRM) training
  - FAA AC 120-51E - Crew Resource Management Training;
  - ICAO Doc 9683 – Human Factors Training Manual
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

OTHER TRAINING

47. Other training – Dangerous goods training

47A. Purpose:

Ensuring only appropriately packaged and documented DG are carried in the appropriate aircraft hold locations.

47B. Expectations:

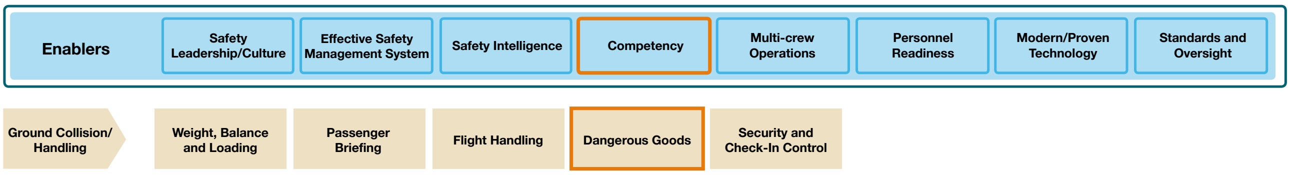
The aircraft operator has a Dangerous Goods Training programme in place

47C. Processes and practices

47C.1 Dangerous Goods Awareness training, compliant with local regulatory requirements, is in place for all pilots at least every 2 years to ensure that they are aware of the requirements, including relevant legislation, limitations and documentation, for the carriage of hazardous materials.

Other references

- ICAO Annex 18
- IATA Dangerous Goods Regulations
- HeliOffshore Safety Performance Model



ROLE SPECIFIC TRAINING

48. Role specific training – Helicopter Underwater Escape Training (HUET)

48A. Purpose:

Ensuring the occupants can escape in the event of a capsize or submersion.

48B. Expectations:

Flight Crew are HUET trained.

48C. Processes and practices

48C.1 Flight crew complete a HUET course to a recognised standard (e.g., OPITO) that includes the use of a Modular Egress Training Simulator (METS) at least every four years, unless local regulation requires greater frequency.

48C.2 In HUET devices the emergency exit types and sizes are representative of the aircraft flown in offshore operations.

48C.3 All HUET trained personnel or their companies maintain a documented record of the training completed.

Other references

- OPITO Training Standard - Helicopter Underwater Escape Training (HUET) with Compressed Air Emergency Breathing System (CA-EBS)
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

ROLE SPECIFIC TRAINING

49. Role specific training – Emergency Breathing Systems (EBS)

49A. Purpose:

Ensuring the occupants can escape in the event of a capsize or submersion.

49B. Expectations:

Flight Crew are trained on the use of CA-EBS.

49C. Processes and practices

49C.1 HUET includes training in the use of the CA-EBS to ensure user proficiency at least every four years, unless local regulation requires greater frequency.

49C.2 The CA-EBS is compatible with the lifejacket (and immersion suit, if required).

49C.3 An appropriate Maintenance Program (including pre-flight inspection) is in place for these items.

Other references

- OPITO Training Standard - Helicopter Underwater Escape Training (HUET) with Compressed Air Emergency Breathing System (CA-EBS)
- EN4856:2018
- ETSO 2C519
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

50. Role specific training – Helideck

50A. Purpose:

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

50B. Expectations:

A programme for annual helideck training of flight crew is in place.

50C. Processes and practices

50C.1 An annual training programme includes as a minimum:

- 50C.1.1 Information on helideck design and markings, including the chevron, TD/PM, D value and t value, LOS, 1:5 falling gradient and Helideck Monitoring System (HMS).
- 50C.1.2 The significance of the alignment of the H with regard to the OFS.
- 50C.1.3 The correct approach path.
- 50C.1.4 Correct use of the TD/PM circle and relative positioning to ensure clearance from obstacles and enable safe passenger movement on deck.

50C.2 In addition, there is a written syllabus for training of aircrew engaged in flights to small and medium size vessels while underway which includes:

- 50C.2.1 Differences in the location of the helideck (bow/stern/midships) and the effect this has on helideck movement
- 50C.2.2 Differences in approach/departure procedures for vessels under way and the effect this has on relative wind and turbulence at the various helideck positions

Other references

- CAP 437
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

51. Role specific training – Control guarding

51A. Purpose:

To prevent injuries following an accidental flight controls input while rotors running on the ground.

51B. Expectations:

Flight controls are guarded during embarkation/disembarkation.

51C. Processes and practices

51C.1 When loading or unloading passengers from helicopters with rotors running, a member of the flight crew remains guarding the controls and only performs cockpit duties related to the identification of external hazards and passenger movement around the aircraft.

Other references

- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

International Association of Oil & Gas Producers

IOGP REPORT 690-3

Support Operations

PASSENGER HANDLING

1. Passenger check-in

1A. Purpose

Ensuring manifests are accurate, and that passengers are appropriately escorted and seated.

1B. Expectations

A passenger check in process is established.

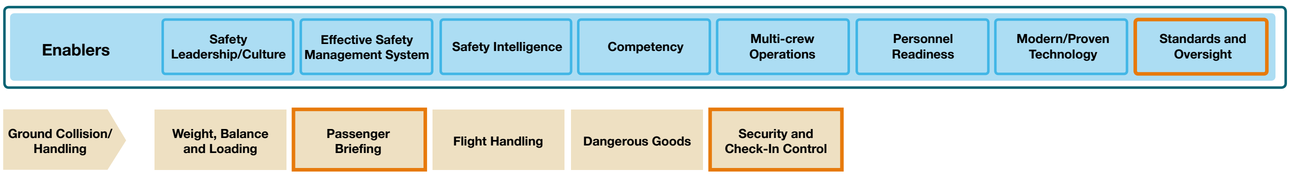
1C. Processes and practices

1C.1 A process is in place to verify the identity of passengers prior to boarding, ensure they meet safety training, medical or other currency requirements, search for prohibited items (prohibited either in-flight or at the destination) and deny boarding to passengers who are disruptive.

1C.2 The aircraft operator has a process to conduct inbound, onshore security checks in accordance with any local regulations or company contractual requirements.

Other references

- ICAO Annex 9 App2
- HeliOffshore Safety Performance Model



PASSENGER HANDLING

2. Onshore passenger holding areas

2A. Purpose

Ensuring the physical design of helidecks and heliport, their markings, lighting, emergency cover, and all ancillary systems are suitable for safe operations..

2B. Expectations

A suitable onshore passenger holding area is provided.

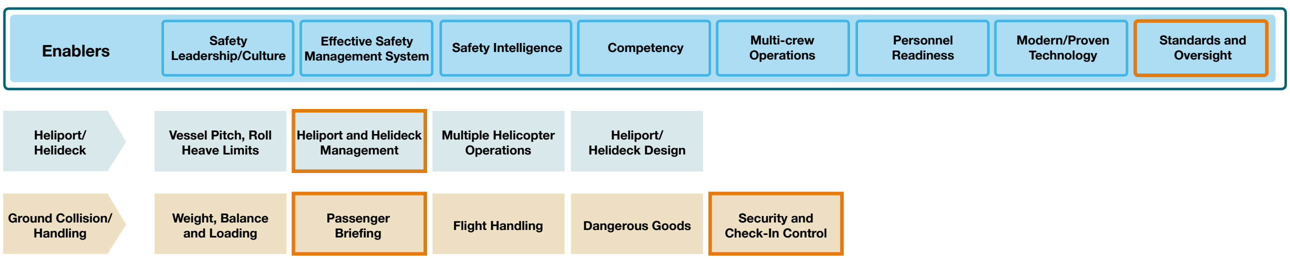
2C. Processes and practices

2C.1 The onshore passenger holding area includes:

- 2C.1.1 A designated area for the passenger and freight check-in process and security checks
- 2C.1.2 A designated area for the passenger and freight check-in process, i.e., for weighing and manifesting all outgoing passengers, baggage, and freight on calibrated scales
- 2C.1.3 A dedicated and secure waiting area for outbound passengers that separates them from incoming passengers
- 2C.1.4 A designated area for the display of written and graphic information related to aircraft safety and local procedures
- 2C.1.5 A viewing room for video safety briefings (which may be the same area as that used for the display of information)
- 2C.1.6 If applicable, a changing room for the donning of immersion suits (which may also be the same area as the video room)
- 2C.1.7 A baggage collection area for incoming passengers

Other references

- ICAO Annex 6 Vol 3 Chapter 2.1
- HeliOffshore Safety Performance Model



PASSENGER HANDLING

3. Alcohol and drugs

3A. Purpose

Ensuring passengers are qualified and approved to travel, and are free of prohibited items.

3B. Expectations

Passengers are fit to travel.

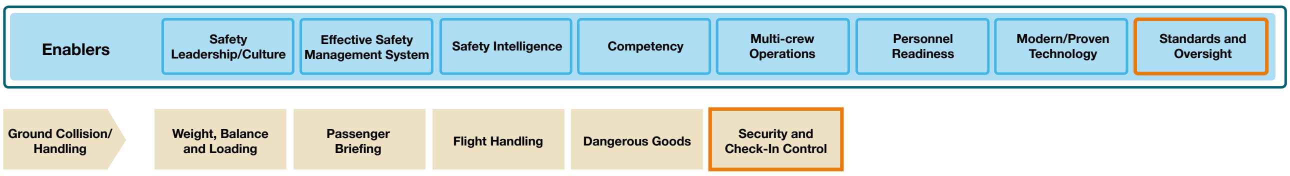
3C. Processes and Practices

3C.1 Personnel under the influence of alcohol or non-prescription drugs are prohibited from boarding any aircraft.

3C.2 Check-in and Security staff are trained to recognise the signs of substance abuse and alert their management for appropriate action to remove the passenger from the flight.

Other references

- ICAO Annex 9 Chapter 6.44, 6.45
- ICAO Doc 10117 (Manual on the Legal Aspects of Unruly and Disruptive Passengers)
- HeliOffshore Safety Performance Model



PASSENGER HANDLING

4. Passenger and baggage weights

4A. Purpose

Ensuring the accurate and safe aircraft loading within approved limits.

4B. Expectations

Passenger and baggage weights are accurate.

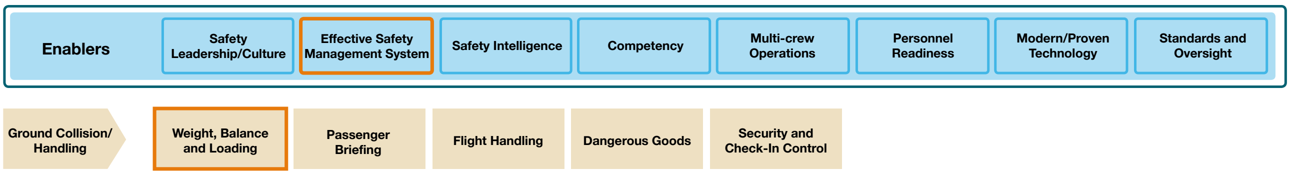
4C. Processes and practices

4C.1 Actual weights are used for passengers and all baggage

4C.2 Weighing scales are calibrated as per manufacturers recommended intervals. .

Other references

- ICAO Annex 6 Vol 3 Chapter 2.3
- HeliOffshore Safety Performance Model



PASSENGER HANDLING

5. Passenger handling

5A. Purpose

Ensuring passengers are seated in appropriate positions to facilitate escape.

5B. Expectations

Passengers are allocated appropriate seats.

5C. Processes and practices

5C.1 No passenger is seated more than one seat from a push out window or emergency exit.

5C.2 A means is in place to identify passengers that will be required to be seated next to appropriate exits, as described in the "Step Change for Safety XBR process"

5C.3 Ground Handling and Helideck staff involved in passenger seat attribution/verification during boarding phase are aware of the XBR process

Other references

- Step Change in Safety: https://www.stepchangeinsafety.net/workgroups/helicopter-safety/
- EASA AMC1 SPA.HOFO.165(h) Additional procedures and equipment for operations in a hostile environment - Emergency Exits and Escape Hatches
- RAF IAM (Report No.528) and University of Loughborough Report on body size for the Joint Aviation Authorities (JAA) in 2001
- UK CAA CAP 562 Civil Aircraft Airworthiness Information and Procedures.
- HeliOffshore Safety Performance Model

PASSENGER HANDLING

6. Passenger - Personal Protective Equipment

6A. Purpose

Ensuring passengers are suitably dressed for the environment.

6B. Expectations

Passengers have suitable Personal Protective Equipment (PPE) for the environment.

6C. Processes and practices

6C.1 All passengers are issued constant wear lifejackets meeting ETSO-2C504 with Personal Locator Beacons (PLBs) and Compressed Air Emergency Breathing Systems (CA EBS).

6C.1.1 PLBs transmit on 121.5Mhz and/or AIS.

6C.1.2 PLBs are assessed for compatibility the aircraft ELT and Crew PLBs.

6C.2 Immersion suits are worn when required by regulation or by contract, meet ETSO-2C502 or ETSO-2C503, or national aviation authority approved TSO, and which have been tested for compatibility with the lifejacket

6C.3 Information is displayed on passenger clothing requirements, including the type and number of layers required under immersion suits, if applicable to the operating region.

6C.4 Hearing protection is provided for passengers together with instructions for its use.

Other references

- ETSO 2C502
- ETSO 2C503
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	**Sea Survival**	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

PASSENGER HANDLING

7. Passenger briefing

7A. Purpose

Ensuring passengers have the necessary knowledge to safely board, disembark, and evacuate the aircraft.

7B. Expectations

Passengers are adequately briefed before the flight.

7C. Processes and Practices

7C.1 Passengers are briefed on emergency procedures and other safety matters prior to every flight. A video briefing is the preferred delivery method; this may be supplemented or replaced by an aircrew briefing.

7C.2 Passenger briefings are tailored to the specific design features and equipment of the aircraft to be used. If there are minor differences in configuration between the briefing and aircraft to be used, a supplementary briefing on the aircraft or using illustrations of the differences is provided before flight. Differences are minor if they are easy to understand and identify on the aircraft, do not introduce risk of injury if misused and have no adverse effect on survivability.

7C.3 Briefings are valid for 24 hours, after which a fresh briefing is delivered.

7C.4 In locations where some passengers do not fully understand the language used for the briefing, the video contains subtitles, or there is a video in the local language, or a translator is provided if necessary.

7C.5 There is a safety briefing card for each passenger seat containing information on safety equipment and emergency procedures. The cards use graphics with international symbols, or have information added in the local language(s) if required.

7C.6 The passenger briefing includes:

- 7C.6.1 A general description of the aircraft and the danger areas around main and tail rotors, including safe and unsafe directions of approach and the danger of blade sail during rotor start or shutdown.
- 7C.6.2 How survival suits are to be worn, if required, including use of hoods and gloves.
- 7C.6.3 Procedures for boarding and exiting the aircraft. Passengers are required to remain seated until the flight/ground crew or other designated personnel open the doors and instruct them to disembark.
- 7C.6.4 Proper storage of hand carried items.
- 7C.6.5 Instructions that smoking and the use of electronic cigarettes are prohibited at all times in aircraft, or on the aircraft movement area.
- 7C.6.6 Instructions that seat belts and shoulder harnesses are required to be worn at all times, other than when embarking/disembarking.

PASSENGER HANDLING

7C.6.7 Instructions on the use of personal electronic devices, if permitted.

7C.6.8 The location and operation of doors, emergency exits, emergency and lifesaving equipment such as fire extinguishers, first aid kits, life jackets, life rafts, survival gear, and emergency radio equipment (ELT and EPIRBs).

7C.6.9 Actions to be taken in the event of emergencies, including the brace position.

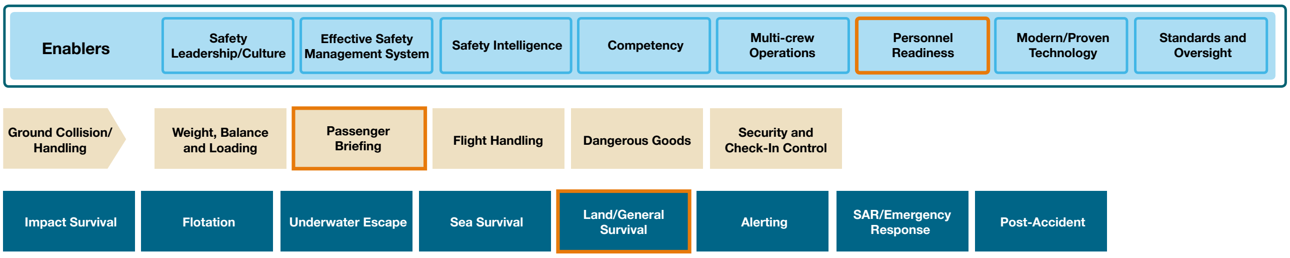
7C.6.10 Procedures for evacuating an aircraft in the event of an emergency landing on the water or ditching, including the use of reference points for orientation, reminders to not inflate life jackets until outside the helicopter and not to disembark the aircraft while the rotors are turning.

7C.6.11 The means of communication between crew and passengers.

7C.6.12 The location and review of passenger briefing card.

Other references

- ICAO Annex 6 Vol 3 Chapters 2.2.11
- ICAO Doc 10086
- HeliOffshore Safety Performance Model



PASSENGER HANDLING

8. Cargo - Weighing and documentation

8A. Purpose

Ensuring the accurate and safe aircraft loading within approved limits.

8B. Expectations

Cargo is correctly weighed and recorded in the manifest.

8C. Processes and practices

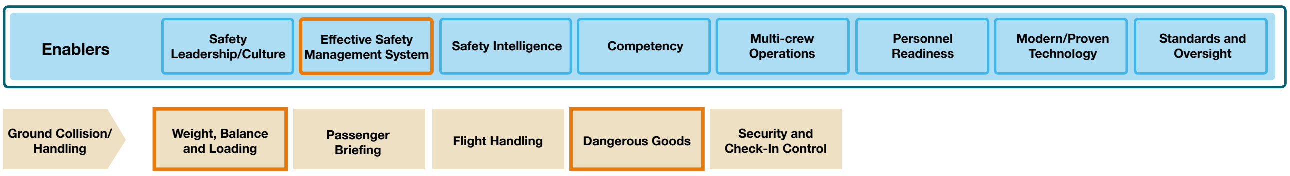
8C.1 Each piece of cargo offered for transport by air is weighed separately and recorded in the manifest.

8C.2 The contents of each piece of cargo is verified against the manifest by its packing list or by visual inspection

8C.3 Weighing scales are calibrated as per manufacturers recommended intervals. .

Other references

- ICAO Annex 6 Vol 3 Chapter 2.3
- HeliOffshore Safety Performance Model



PASSENGER HANDLING

9. Cargo – Dangerous Goods

9A. Purpose

Ensuring only appropriately packaged and documented Dangerous Goods are carried in the appropriate aircraft hold locations.

9B. Expectations

The aircraft operator has an appropriate Dangerous Goods programme in place.

9C. Processes and practices

9C.1 Where the carriage of Dangerous Goods by the aircraft operator is authorised, procedures comply with the ICAO Technical Instructions or the IATA Dangerous Goods Regulations and with local regulatory requirements. These include the training of relevant ground staff and the provision of the correct documentation for all DG shipments.

9C.2 Where dangerous goods are not carried, Dangerous Goods Awareness training, compliant with local regulatory requirements, is in place for all relevant ground staff at least every 2 years to prevent the carriage of undeclared dangerous goods that may be found in passengers' baggage and consigned freight.

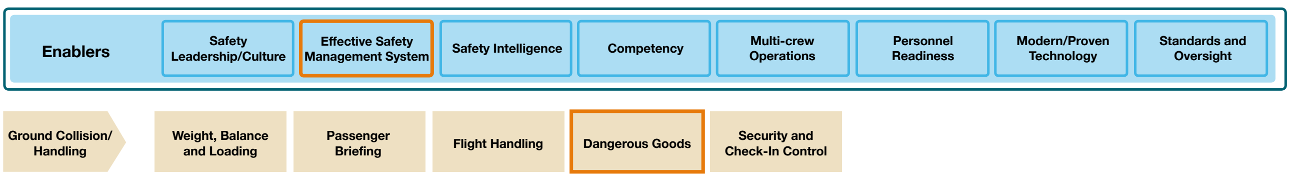
9C.3 Provisions for Dangerous Goods carried by passengers or crew. Limitations for Portable Electronic Devices (PED), batteries, including lithium metal or lithium ion cells or batteries, and specified ignition sources are in place. This includes spare or loose batteries.

9C.4 At a minimum, these cover:

- 9C.4.1 Check-In procedures, including passenger declarations
- 9C.4.2 Forbidding charging PED in-flight
- 9C.4.3 Mitigation measures – Flame/Smoke Bag etc.
- 9C.4.4 E-Cigarettes (if permitted) must have batteries removed
- 9C.4.5 Checked in PED must be switched off
- 9C.4.6 No transport of loose lithium batteries

Other references

- IATA Dangerous Goods Regulations
- HeliOffshore Safety Performance Model



PASSENGER HANDLING

10. Manifests

10A. Purpose

Ensuring manifests are accurate, and that passengers are appropriately escorted and seated.

10B. Expectations

A passenger and cargo manifest is created for each flight.

10C. Processes and practices

10C.1 The manifest is developed from the published flight schedule containing the following information, at a minimum:

- 10C.1.1 Aircraft registration
- 10C.1.2 Flight number (if applicable)
- 10C.1.3 Passenger name
- 10C.1.4 Passenger company affiliation
- 10C.1.5 Passenger actual weight
- 10C.1.6 Passenger baggage weight
- 10C.1.7 Cargo weight

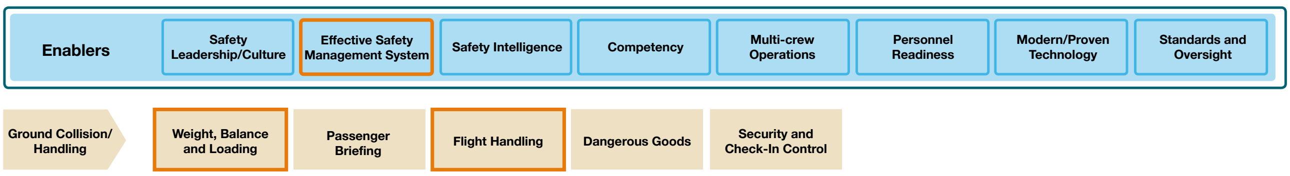
10C.2 The manifest may be hand-written or generated from a computer-based manifesting system. Where a hand-written manifest is used, a copy is left with a responsible person on the ground who retains it until the flight is completed.

10C.3 Where a flight involves multiple sectors, a single consolidated manifest is generated for each sector and provided to the pilot.

10C.4 Any last-minute changes are incorporated, and the manifest is revised accordingly.

Other references

- ICAO Annex 6 Vol 3 Chapter 2.3
- ICAO Annex 9 Chapter 4.14, App 2, App 3.
- HeliOffshore Safety Performance Model



PASSENGER TRAINING

11. Passenger Training – Helicopter Underwater Escape Training

11A. Purpose

Ensuring the occupants can escape in the event of a capsize or submersion.

11B. Expectations

Passengers are HUET trained.

11C. Processes and practices

11C.1 Passengers complete a HUET course to a recognised standard (e.g., OPITO) that includes the use of a Modular Egress Training Simulator (METS) at least every four years, unless local regulation requires greater frequency.

11C.2 This training is completed in conjunction with wet dingy drills using emergency equipment similar to that installed on the aircraft.

11C.3 In HUET METS the emergency exit types and sizes are representative of the aircraft flown in offshore operations.

11C.4 HUET trained personnel or their companies maintain a documented record of the training completed.

Other references

- OPITO Training Standard - Helicopter Underwater Escape Training (HUET) with Compressed Air Emergency Breathing System (CA-EBS)
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

Note: 'Company' is responsible for ensuring that passengers have undergone valid training and have the necessary HUET and CA-A EBS qualifications. For more on 'Responsible Party', consult the Introduction section of this Report.

12. Passenger Training – Compressed Air Emergency Breathing System

12A. Purpose

Ensuring the occupants can escape in the event of a capsize or submersion.

12B. Expectations

Passengers are trained on the use of Compressed Air - Emergency Breathing System (CA-EBS)

12C. Processes and practices

12C.1 Passenger training in the use of the CA-EBS to ensure user proficiency is completed every 4 years.

12C.2 The CA-EBS is compatible with the lifejacket (and immersion suit, if required).

12C.3 An appropriate Maintenance Program (including pre-flight inspection) is in place for these items.

Other references

- OPITO Training Standard - Helicopter Underwater Escape Training (HUET) with Compressed Air Emergency Breathing System (CA-EBS)
- EN4856: 2018
- ETSO 2C519
- HeliOffshore Safety Performance Model

Note: 'Company' is responsible for ensuring that passengers have undergone valid training and have the necessary HUET and CA EBS qualifications. For more on 'Responsible Party', consult the Introduction section of this Report.

HELIDECK

13. Helideck – Management General

13A. Purpose

Ensuring the physical design of helidecks and heliport, their markings, lighting, emergency cover, and all ancillary systems are suitable for safe operations.

13B. Expectations

Separation is maintained between inbound and outbound passengers and cargo.

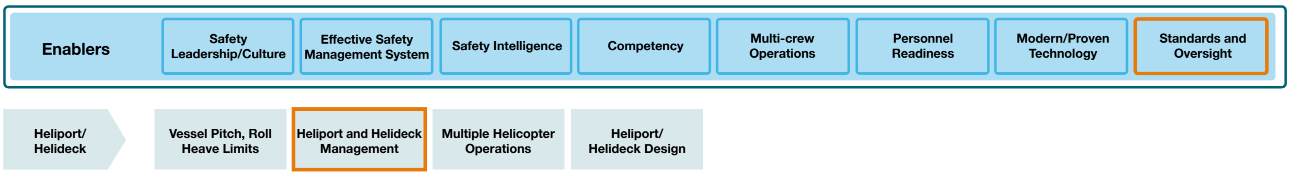
13C. Processes and practices

13C.1 Helipads, heliports and offshore helidecks are clear of all cargo and passengers that are being offloaded prior to passengers or cargo coming onto the helideck/heliport to board the helicopter.

13C.2 Cargo is only be left on a helideck if formalised procedures, which include instructions and provisions for securing the cargo, are established in writing and followed. The instructions describe how to place the cargo without infringing on obstruction free areas.

Other references

- HSAC Helideck Recommended Practice – RP163 2nd Edition
- UK CAA CAP 437;
- HeliOffshore Safety Performance Model



HELIDECK

14. Helideck – Reporting

14A. Purpose

Ensure flight crew receive accurate actual and forecast weather data to make sound planning decisions.

14B. Expectations

The aircraft operator is provided with weather and deck condition reports from offshore locations.

14C. Processes and practices

14C.1 Personnel trained and certified as aviation weather observers, or Automated Weather Observing System (AWOS), are used to provide weather information.

14C.2 The reporting equipment provides the following information:

- 14C.2.1 wind speed and direction
- 14C.2.2 barometric pressure
- 14C.2.3 temperature
- 14C.2.4 visibility
- 14C.2.5 cloud base
- 14C.2.6 sea state

14C.3 For floating facilities, helideck motion data.

14C.4 All reporting equipment must be maintained and calibrated to a defined schedule and the results recorded in a register.

Other references

- CAP 437
- ICAO Annex 6 Vol 3 Chapter 2.5
- BARSOHO
- HSAC Helideck Recommended Practice – RP163 2nd Edition
- HeliOffshore Safety Performance Model

HELIDECK

15. Crane operations

15A. Purpose

Ensuring that helidecks are prepared for safe helicopter operations.

15B. Expectations

Helicopters operations are prohibited on the helideck unless cranes are shut down.

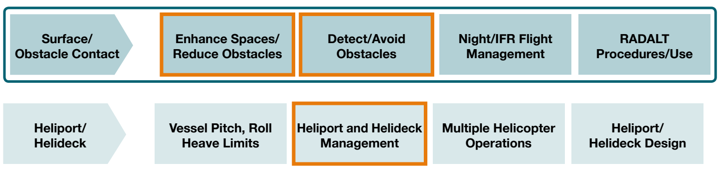
15C. Processes and Practices

15C.1 The company has established procedures to prohibit helideck operations when cranes are active.

15C.2 Procedures are in place to communicate the crane situation to helicopter crews.

Other references

- CAP 437 Chapter 6.24
- HSAC Helideck Recommended Practice – RP163 2nd Edition
- HSAC Helideck Recommended Practice – RP81 BARSOHO
- HSAC Helideck Recommended Practices
- HeliOffshore Safety Performance Model



16. Helideck - Staff training

16A. Purpose

Ensuring that helideck staff are appropriately trained.

16B. Expectations

Helideck staff are trained in accordance with OPITO standards or equivalent.

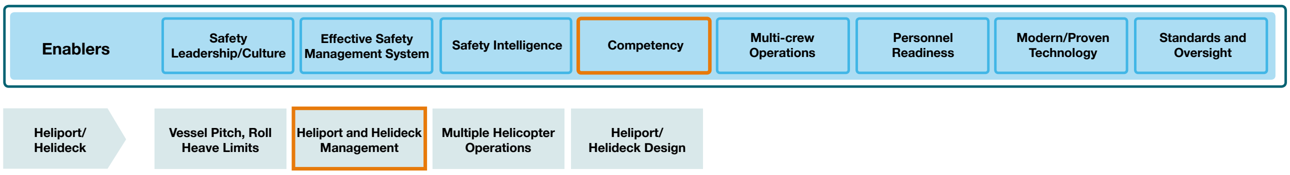
16C. Processes and practices

16C.1 Offshore installations have an HLO available for all helicopter movements with relevant duties and responsibilities clearly outlined in an up-to-date HLO Manual.

16C.2 HLO and Helideck Assistants (HDA) undergo initial and recurrent training every two years in accordance with OPITO standards (or an acceptable alternative standard).

Other references

- OPITO Training Standard - Helideck Emergency Response Team Leader
- BARSOHO
- HSAC Helideck Recommended Practice – RP163 2nd Edition
- HeliOffshore Safety Performance Model



HELIDECK

17. Helideck - Passenger Control

17A. Purpose

Ensuring manifests are accurate, and that passengers are appropriately escorted and seated.

17B. Expectations

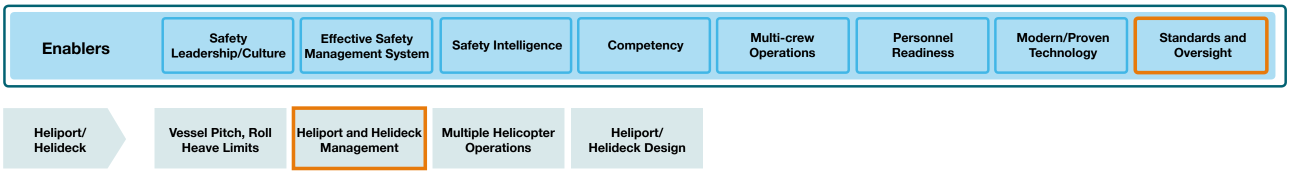
Passengers are properly controlled on helidecks.

17C. Processes and practices

17C.1 An HLO and HDAs are used to control passenger movement on helidecks.

Other references

- HSAC Helideck Recommended Practice 2016-3 9.1.4UK CAA CAP 437
- HeliOffshore Safety Performance Model



HELIDECK

18. Rotors Running Refuelling

18A. Purpose

Ensuring hot refuelling is completed safely.

18B. Expectations

The aircraft operator has established a procedure for Rotors Running Refuelling (RRRF) , if applicable.

18C. Processes and practices

18C.1 The aircraft operator has documented procedures for the conduct of RRRF, where this is permitted, and RRRF has been subject to a risk assessment.

18C.2 The procedures include the following in addition to any local regulatory requirements:

18C.2.1 A pilot is at the controls at all times.

18C.2.2 Passengers normally disembark prior to refuelling; however, if, for safety reasons, the Commander decides to refuel with the passengers on board, the passengers are informed of this decision and the actions to take in the event of a fire.

18C.2.3 Firefighting capability is available and manned.

18C.2.4 A person is stationed at the helicopter door to communicate with the passengers if they remain on board, and assist evacuation in the event of a fire. This person has visual contact with the refuelling operator.

18C.2.5 All seat belts are unfastened, the main exit door away from the side where refuelling is occurring is opened unless otherwise specified by the RFM.

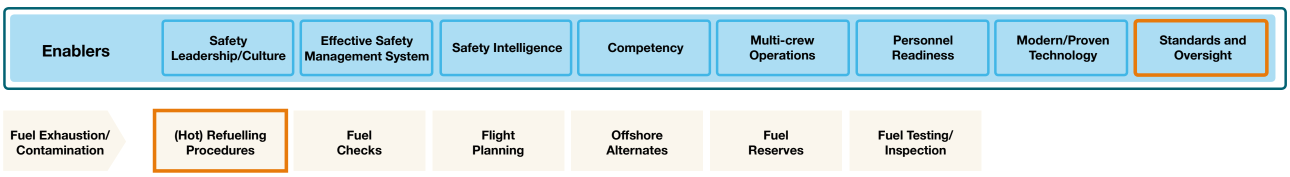
18C.2.6 HF radios is not used during refuelling, and the radar is switched to Standby.

18C.2.7 The aircraft, fuel supply and fuel hose are grounded before removing the fuel cap and inserting the fuel nozzle into the aircraft fuel tank.

18C.2.8 After refuelling, a member of the crew verifies to the flight crew that all equipment has been removed, the fuel cap has been replaced securely and the aircraft is properly configured for flight.

Other references

- UK CAA CAP 437 – Chapter 8;
- HSAC Helideck Recommended Practice – RP163 2nd Edition
- HeliOffshore Safety Performance Model



International Association of Oil & Gas Producers

IOGP REPORT 690-4

Engineering

1. Basic principles

1A. Purpose

Ensuring aircraft are airworthy and reliable.

1B. Expectations

The Aircraft Operator provides airworthy aircraft and demonstrates that continuing airworthiness activities and aircraft maintenance are performed in accordance with its Approved Maintenance Programme (AMP).

1C. Processes and practices

1C.1 All appropriate organisational approvals and certificates are in place.

1C.2 A competent manager (Post-holder, Department Manager, or equivalent), is accountable for the Operator's management of continuing airworthiness and maintenance, or any contracted continuing airworthiness or maintenance organisations. Where applicable they are approved by the NAA.

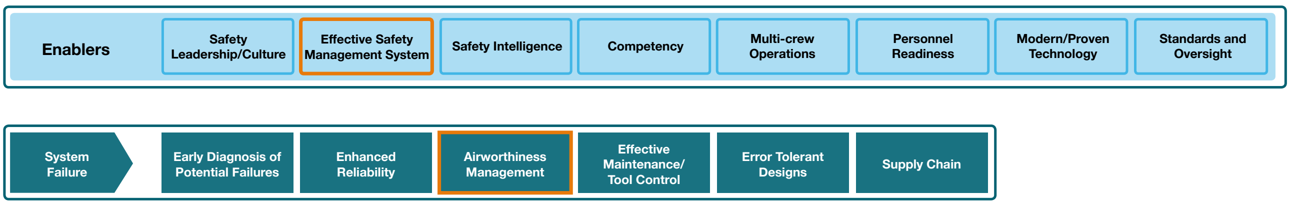
1C.3 The operator has an internal Aircraft Maintenance Organisation (AMO) or a contract with an external AMO to perform maintenance activities for the operator.

1C.4 The operator's continuing airworthiness management has a process, which provides formal work orders to the internal or contracted AMO, clearly describing what maintenance is required, when it has to be performed and to what standard, based on manufacturers' recommendations or the AMP.

1C.5 The Operator has a Maintenance Control manual or equivalent document which meets the requirements of ICAO Annex 6 Part III Chapter 6.2

Other references

- ICAO Annex 6 Vol 3 Chapters 2.2.11
- ICAO Doc 10086
- HeliOffshore Safety Performance Model



2. Continuing Airworthiness - Management

2A. Purpose

Ensuring aircraft are airworthy and reliable.

2B. Expectations

The Aircraft Operator is responsible for the continuing airworthiness of its aircraft.

2C. Processes and practices

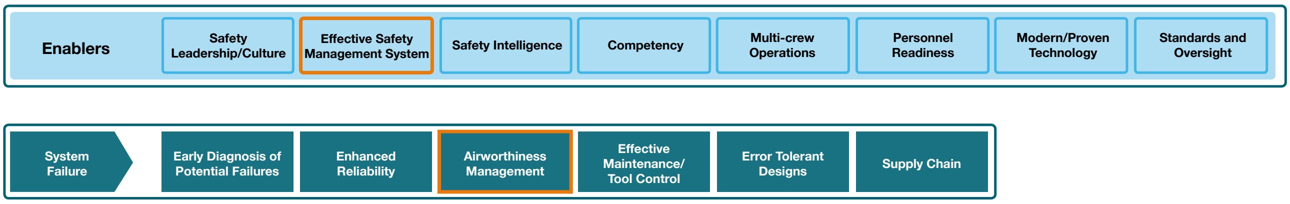
2C.1 The Operator maintains aircraft continuing airworthiness by:

- 2C.1.1 the development and review of an Approved Maintenance Programme (AMP) in accordance with applicable regulations and approved by the NAA;
- 2C.1.2 the review and management of all airworthiness data and instructions including any Airworthiness Directives (ADs) from the applicable NAA and Service Bulletins (SBs) from the OEM or STC holder.
- 2C.1.3 implementation of any operational directives or other measures mandated by the governing airworthiness authority in response to a safety issue or an issue reported by a relevant authority.
- 2C.1.4 the rectification of any defect and damage affecting safe operation, in accordance with applicable regulation or the approved MEL.
- 2C.1.5 Retention of Maintenance Data (see section 5.2.3 Maintenance Data)
- 2C.1.6 the planning of all maintenance, in accordance with the AMP.
- 2C.1.7 the control of the accomplished maintenance to ensure that it has been executed by an AMO to the required standard and in adherence to applicable regulations and Maintenance Data.
- 2C.1.8 the accomplishment of modifications using data approved by the governing NAA.
- 2C.1.9 the proper management of all continuing airworthiness records (e.g., airframe/engine logbooks, life limited parts and log cards), including the operator technical log.
- 2C.1.10 the proper monitoring of the aircraft configuration to ensure that it reflects the current status of the aircraft in accordance with the Type Certificate.
- 2C.1.11 the development of procedures, to be included in a manual approved by the NAA, to identify the duties and responsibilities, qualifications and experience of the staff employed to accomplish the above tasks; and how airworthiness related activities, including those described above, will be accomplished.

CONTINUING AIRWORTHINESS

Other references

- ICAO Annex 6 Part 3 Ch 6.1
- BARSOHO BIG 2.4
- HeliOffshore Safety Performance Model



3. Continuing Airworthiness – Approved Maintenance Programme

3A. Purpose

Ensuring aircraft are airworthy and reliable.

3B. Expectations

The Aircraft Operator manages an Approved Maintenance Programme (AMP) for each aircraft type operated

3C. Processes and practices

3C.1 The AMP complies with the following:

- 3C.1.1 instructions issued by the NAA
- 3C.1.2 instructions for continuing airworthiness issued by the OEM and holders of type certificates and supplemental type certificates
- 3C.1.3 instructions for continuing airworthiness issued by approved design organisations for modifications and repairs
- 3C.1.4 additional instructions proposed by the operator and approved by the OEM/STC holder and NAA.

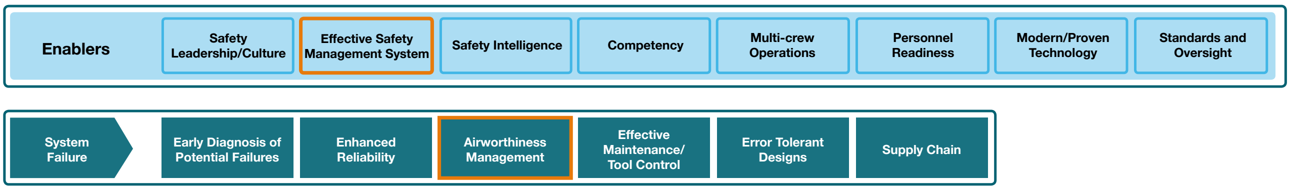
3C.2 The aircraft is only maintained according to one AMP.

3C.3 The AMP is approved by the NAA and is reviewed at least annually, considering the environmental conditions and aircraft utilisation, to:

- 3C.3.1 Ensure compliance with new and/or modified maintenance instructions included in the documents affecting the programme basis (e.g., from the OEM or Maintenance Review Board (MRB)).
- 3C.3.2 Evaluate the AMP effectiveness by monitoring systems, equipment and component reliability, aiming to reduce repetitive defects, malfunctions and damage to a minimal level.
- 3C.3.3 Adherence to scheduling of inspection and maintenance tasks; the source of such scheduling includes internal or external organisations, MRBs, OEM instructions or directives from the governing airworthiness authority.

Other references

- HeliOffshore Safety Performance Model



4. Continuing Airworthiness – Maintenance Data

4A. Purpose

Ensuring maintenance is conducted to the Approved Maintenance Program and Standards.

4B. Expectations

The Aircraft Operator manages the appropriate maintenance data (any applicable requirement, AD, SB, or information issued by the OEM/STC holder and/or NAA).

4C. Processes and practices

4C.1 All airworthiness data and instructions including any Airworthiness Directives (ADs) from the applicable NAA, are tracked.

4C.2 All ADs and SBs are evaluated.

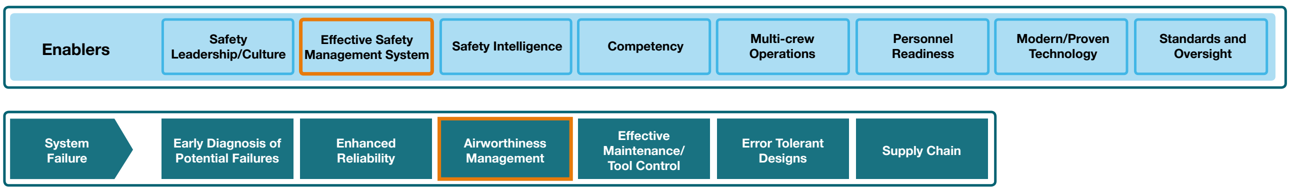
4C.3 All mandatory SBs are embodied, and there is an embodiment policy regarding OEM/STC holder recommended/optional SBs and any applicable bulletins are applied both aircraft and stored components.

4C.4 The maintenance of a list of compliance by airframe, engine, and STC installed appliance and developing a method to clearly demonstrate the status of compliance for each airframe and currently installed components.

4C.5 All applicable maintenance data, including manuals, is current and readily available for use by the continuing airworthiness and AMO staff.

Other references

- ICAO Doc 9760 Ch 9
- HeliOffshore Safety Performance Model



5. Continuing Airworthiness - Minimum Equipment List

5A. Purpose

Ensuring aircraft are airworthy and reliable.

5B. Expectations

The aircraft operator has a Minimum Equipment List (MEL) for each aircraft in the fleet

5C. Processes and practices

5C.1 The MEL is developed by the operator and based on, but is no less restrictive than, the Original Equipment Manufacturer (OEM) Master Minimum Equipment List (MMEL), and approved by the NAA.

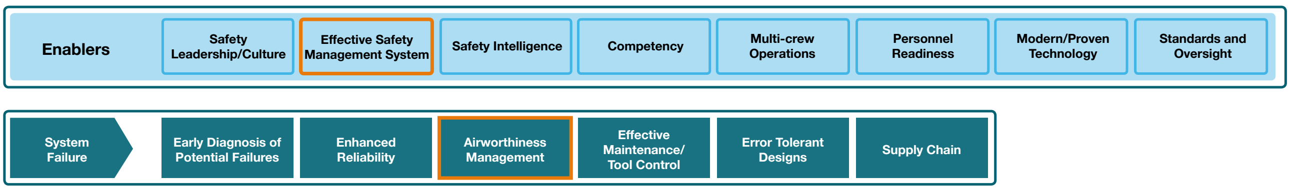
5C.2 Where permitted by local regulations, non-essential equipment and furnishings (NEF) are incorporated into the MEL or a supplement to the MEL.

5C.3 MELs are readily available to flight crews and maintenance personnel for reference.

5C.4 Required equipment as detailed in contract requirements are controlled by a Minimum Departure Standard (MDS), or equivalent.

Other references

- ICAO Annex 6 Part 2 4.1.3
- HeliOffshore Safety Performance Model



6. Continuing Airworthiness – Aircraft Maintenance Records

6A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

6B. Expectations

The Aircraft operator maintains proper maintenance and flight records.

6C. Processes and practices

6C.1 Maintenance and flight records are maintained as required by applicable national regulations.

6C.2 As a minimum, the aircraft records consist of the following documents:

- 6C.2.1 The airframe logbook
- 6C.2.2 The engine logbook(s) and related components log cards
- 6C.2.3 The APU logbook(s) (if applicable)
- 6C.2.4 Log cards for any SLL and TBO component
- 6C.2.5 The Aircraft Technical Log (ATL)

6C.3 The above aircraft records contain complete and current:

- 6C.3.1 ADs, SBs, or information issued by the OEM/STC holder and NAA
- 6C.3.2 Status of modifications and repairs
- 6C.3.3 Status of compliance with the AMP
- 6C.3.4 Status of SLL components
- 6C.3.5 Mass and balance report
- 6C.3.6 List of deferred defects

6C.4 An ATL is used that meets local NAA requirements:

6C.5 All the above-mentioned continuing airworthiness records are managed by means of a reliable aviation maintenance software programme, or equivalent capable of managing:

- 6C.5.1 Component tracking, including any condition-based penalties cycles from operational flight data (e.g., increased gross weight, start/stop engine cycles, OEI events, etc.)
- 6C.5.2 Flight time tracking
- 6C.5.3 Logbook tracking
- 6C.5.4 Compliance tracking for all issued ADs and SBs
- 6C.5.5 Work Order management
- 6C.5.6 Inventory control.

CONTINUING AIRWORTHINESS

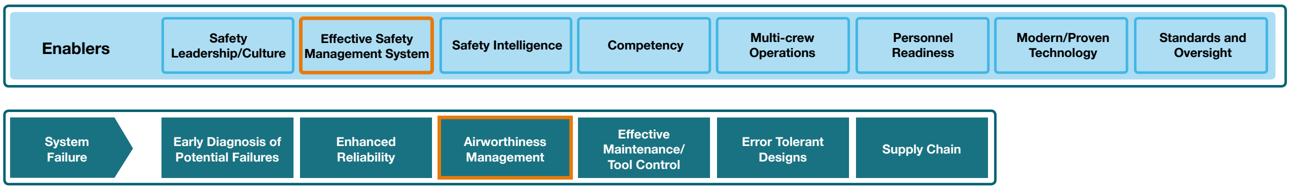
6C.6 All maintenance records of work carried out on its aircraft are maintained to demonstrate that the work has been executed to the required standard.

6C.7 The records are stored in a secure manner that ensures protection from damage, alteration, and theft.

6C.8 Electronic records have a backup system which is updated at least every 24 hours.

Other references

- ICAO Annex 6 Part 3 Ch 6.2
- HeliOffshore Safety Performance Model



7. Continuing Airworthiness – Reliability programme

7A. Purpose

Ensuring aircraft are airworthy and reliable.

7B. Expectations

The aircraft operator has a reliability programme in place.

7C. Processes and practices

7C.1 The aircraft operator has a Reliability Program that monitors the effectiveness of the maintenance program by recording, as a minimum:

- 7C.1.1 Component Low Mean Time Before Unscheduled Removals (MTBUR) by aircraft type
- 7C.1.2 Flight hour trends of non-serialised parts usage by aircraft type
- 7C.1.3 Flight hour model trends of MEL/MDS usage by system by aircraft type
- 7C.1.4 Flight Hour Pilot reported discrepancy trends by aircraft type

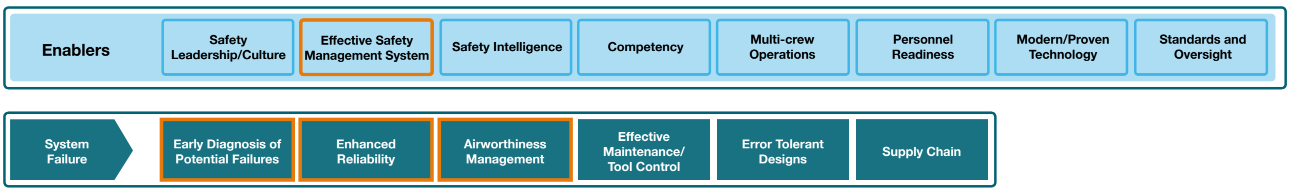
7C.2 There is a system in place to review human errors in maintenance and quality through a Just Culture mechanism with the focus on improving company procedures and enhancing the barriers to prevent maintenance errors. These are then trended, by type/model and casual factors related to the events.

7C.3 There is a procedure in place to alert the TC/STC holder to any design feature that increases the risk of a critical error.

7C.4 There is a procedure in place to regularly communicate reliability data with the TC/STC holder with a focus on improving low performing systems and extending inspection intervals (human error risk reductions) on repeated "no defect noted" inspections of non-flight critical systems.

Other references

- ICAO Annex 8 Part II Chapter 4.2
- ICAO Doc 9760 Part III Chapter 7.4
- HeliOffshore Safety Performance Model



CONTINUING AIRWORTHINESS

8. Continuing Airworthiness - Workplace

8A. Purpose

Ensuring aircraft are airworthy and reliable.

8B. Expectations

The aircraft operator provides suitable accommodation for continuing airworthiness staff.

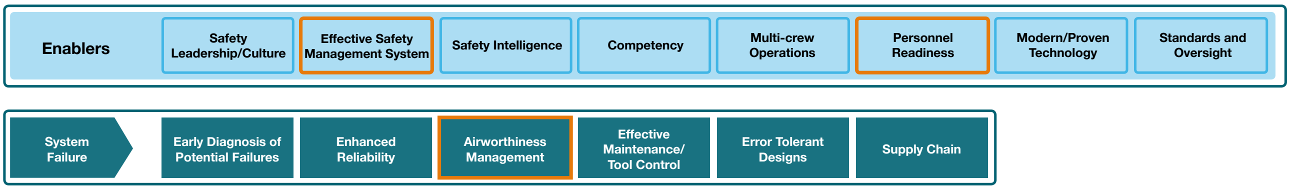
8C. Processes and practices

8C.1 Continuing airworthiness staff are provided with suitable office accommodation so that they can carry out their designated duties in a manner that contributes to upholding good standards.

8C.2 A dedicated space for a technical library is included in the accommodation, and fireproof lockers are provided for hard copies of airworthiness records.

Other references

- ICAO Doc 9760 Chapter 10.6.1.1
- HeliOffshore Safety Performance Model



9. Maintenance management – Aircraft Maintenance Organisation Procedures

9A. Purpose

Ensuring maintenance is conducted to the AMP and Standards.

9B. Expectations

The maintenance organisation has a set of documented procedures.

9C. Processes and practices

9C.1 The procedures include at least the following:

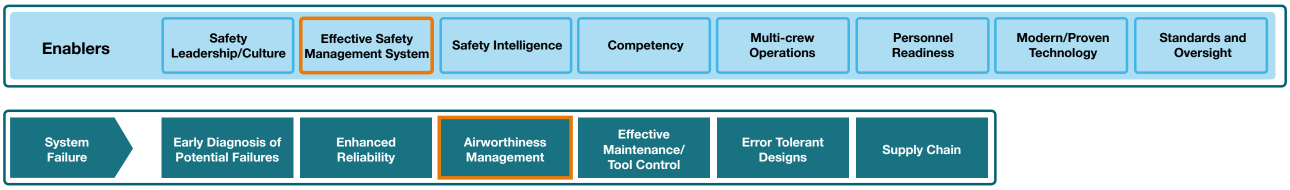
- 9C.1.1 A general description of the scope of work authorised under the organisation's terms of approval
- 9C.1.2 A description of the organisation's procedures and quality or inspection system
- 9C.1.3 A general description of the organisation's facilities, including a list of operating locations, where applicable
- 9C.1.4 The names, duties and responsibilities of the accountable executive and post holders involved in maintenance management, including their deputies
- 9C.1.5 An organisation chart showing associated chains of responsibility
- 9C.1.6 A description of the procedures used to establish the competence of maintenance personnel
- 9C.1.7 A description of the method used for the completion and retention of maintenance records
- 9C.1.8 A description of the procedures for preparing the maintenance release and the circumstances under which the release is to be signed
- 9C.1.9 The personnel authorised to sign the maintenance release and the scope of their authorisation
- 9C.1.10 A description, when applicable, of contracted activities and arrangements for quality assurance thereof
- 9C.1.11 A description, when applicable, of the additional procedures for complying with an operator's maintenance procedures and requirements
- 9C.1.12 A description of the procedures for complying with the information reporting requirements of any reliability programme
- 9C.1.13 A description of the procedure for receiving, assessing, amending and distributing within the maintenance organisation all necessary airworthiness data from the organisation responsible for the type design
- 9C.1.14 Procedures for maintenance check flights

MAINTENANCE MANAGEMENT

9C.2 These procedures are contained in a dedicated manual (e.g., Company Maintenance Manual and Maintenance Organisation Exposition) that is amended as necessary to reflect the actual organisation processes.

Other references

- ICAO Annex 8 Part II Chapter 6.3
- ICAO Annex 6 Part 3 Ch 9.2
- HeliOffshore Safety Performance Model



MAINTENANCE MANAGEMENT

10. Maintenance Management - Maintenance planning

10A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

10B. Expectations

An effective process for scheduling of maintenance is in place.

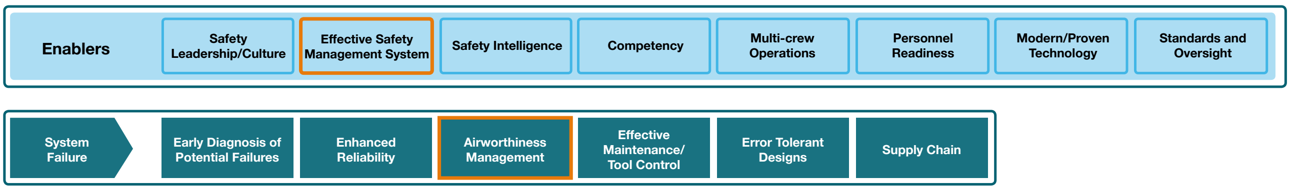
10C. Processes and practices

10C.1 The planning of maintenance, in accordance with the AMP, is executed by using reliable software, or equivalent which allows for traceability.

10C.2 Formal work orders, listing each scheduled maintenance inspection/check required, are issued by the Continuing Airworthiness Management and performed by the AMO.

Other references

- ICAO Annex 8 Part IVB Chapter 7.7
- HeliOffshore Safety Performance Model



11. Maintenance management - Maintenance records

11A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

11B. Expectations

The maintenance organisation keeps detailed maintenance records, allowing the airworthiness status and history of the aircraft to be clearly established.

11C. Processes and practices

11C.1 There is a work order or technical log system (or electronic equivalent) containing detailed record of the accomplishment of each maintenance task. is a work card or work sheet system (or electronic equivalent).

11C.2 Any parts utilised in the performance of said tasks are determined through the paper or electronic system.

11C.3 Maintenance records are neat, legible, and complete in accordance with operator procedures and local regulation.

11C.4 Staged Work Sheets (SWS) or computerised task cards in place for complex tasks that require the use of multiple OEM maintenance manuals or reference materials, (e.g. engine changes).

11C.5 SWS are in place for tasks where the operator is required to record information and has elected to utilise forms for the process.

11C.6 SWS are part of a revision process to ensure endure engineers are using the correct revision of the technical publications.

11C.7 Any duplicate inspection requirement is clearly identified and signed off.

11C.8 Identifying stamps or electronic signatures are and detailed in the operator procedures and are listed in the organisation's documented processes against the names of the authorised personnel.

11C.9 The work cards or work sheets are collected into a work package which contains maintenance records in a structured manner.

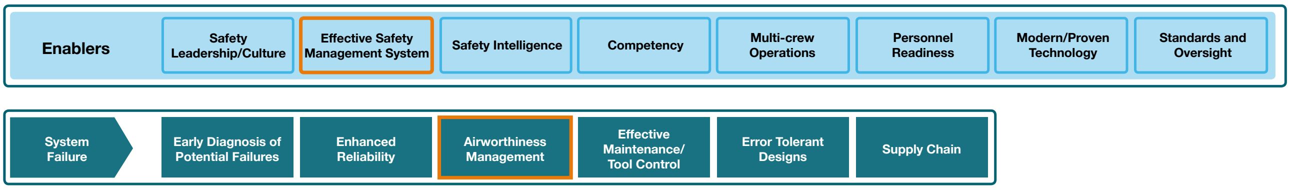
11C.10 Maintenance records refer to the revision status of the maintenance data used.

11C.11 All maintenance records are checked for completeness and compliance as detailed in the operator procedures.

MAINTENANCE MANAGEMENT

Other references

- ICAO Annex 6 Vol 3 Chapter 6.4
- HeliOffshore Safety Performance Model



12. Maintenance management - Foreign Object Damage checks

12A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

12B. Expectations

The AMO has a process for a post-maintenance verification check for damage, security, tools, and equipment.

12C. Processes and practices

12C.1 On completion of each maintenance task, a verification check is carried out to ensure the aircraft or component is clear of all tools, equipment and any other extraneous parts and material, and that all access panels removed have been refitted correctly.

12C.2 Procedures are in place to conduct leak checks when any maintenance has been performed which compromises the integrity of the fuel, oil, or hydraulic systems.

12C.3 The verification check is recorded on the maintenance work card system.

Other references

- https://www.skybrary.aero/index.php/Foreign_Object_Debris_(FOD)
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

13. Maintenance Management - Independent Inspections (Note1)

13A. Purpose

Ensuring design and continuing airworthiness practices minimise the probability and consequence of human error in maintenance.

13B. Expectations

There is a procedure to clearly identify and document Critical Maintenance Tasks (CMT).

13C. Processes and practices

13C.1 CMTs are subject to an independent inspection carried out by a second person not involved in the original task. At least one of these people is qualified and authorised to sign the Maintenance Release.

13C.2 The training, competence and authorisation for those staff approved to perform duplicate inspections on the aircraft or components are documented.

13C.3 CMT procedures are detailed for duplicate inspections during complex or lengthy tasks using staged worksheets (e.g., an engine or gearbox replacement, where duplicate inspections are performed at key stages of the overall task to ensure the current work is properly inspected and certified, before it is covered by further assembly).

13C.4 There is a procedure to alert the TC Holder or STC Holder to any design features or maintenance requirements that increase the risk of critical error if/when identified.

13C.5 CMTs are maintenance tasks that involve the assembly or disturbance of any system that can 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.

13C.6 CMTs are also identified as part of the companies SMS. These maybe simple, repetitive tasks, which have been identified as being prone to error (engine cowling closure, oil caps) may be subjected to a secondary inspections and procedures are in place for these tasks.

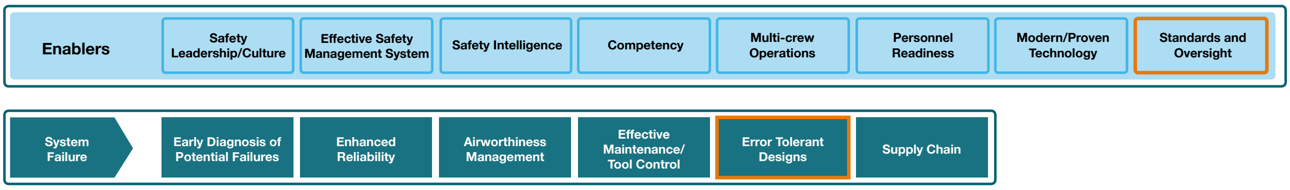
Note 1:

- The principle of additional inspections on critical aircraft systems is well understood and accepted.
- National Aviation Authorities (NAA) have given these additional inspections different titles: Duplicate Inspections by the UK CAA; Independent Inspections by CASA and EASA; Required Inspection Items (RII) by the FAA; and Dual Inspection or Independent Check by Transport Canada.

MAINTENANCE MANAGEMENT

Other references

- Industry recommended practice
- UKCAA CAA PAPER 2002/06
- HeliOffshore Safety Performance Model



MAINTENANCE MANAGEMENT

14. Maintenance management – Release to Service

14A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

14B. Expectations

The aircraft operator has a documented system of maintenance control and release to service of all aircraft.

14C. Processes and practices

14C.1 The Operator will not operate an aircraft unless it is maintained and released to service by an AMO.

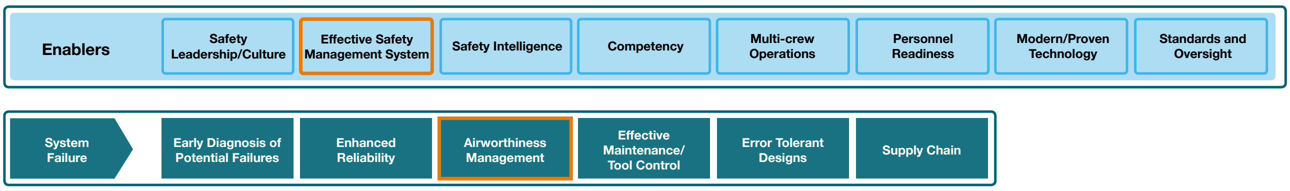
14C.2 A 'Maintenance Release to Service' means that the work specified in the work order is carried out in accordance with the applicable rules and, in respect to that work, an appropriately rated Licensed Engineer considers the aircraft/component ready for service.

14C.3 A Certificate of Release to Service (CRS) is then issued by engineers, as authorised by the AMO, where it verified that all maintenance, as required by the work order, has been properly carried out.

14C.4 Elementary work or servicing (e.g., oil changes and light bulb replacement) are performed under the supervision of a Licensed Engineer.

Other references

- ICAO Annex 6 Part 3, Section II, Chapter 6.7
- HeliOffshore Safety Performance Model



15. Maintenance Observation Programme

15A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance and ensuring continuous improvement.

15B. Expectations

The operator has a structured Maintenance Observation Programme in place.

15C. Processes and practices

15C.1 A structured Maintenance Observation Program (MOP) to monitor maintenance practices at regular intervals through observation of maintenance activity at each operational location is in place. The MOP data is analysed, and appropriate action plans implemented.

Other references

- BARSOHO - 1.2: Effective Safety Management System - MOP
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

16. Quality (Compliance Monitoring) System

16A. Purpose

Ensuring Safety Management Systems are effective at gathering and analysing safety information, managing risk, providing assurance and ensuring continuous improvement.

16B. Expectations

The Operator has an independent Quality System (compliance monitoring), or Quality Assurance System. For further information see 690-1 Safety Management Systems

16C. Processes and practices

- See 690-1 – SMS, Section 11 - Continuous Improvement - Assurance

Other references

- ICAO Annex 8 Part II 6.4.2
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

17. Occurrence reporting system

17A. Purpose

Ensuring a collaborative approach to sharing safety information to directly benefit the entire industry and all stakeholders.

17B. Expectations

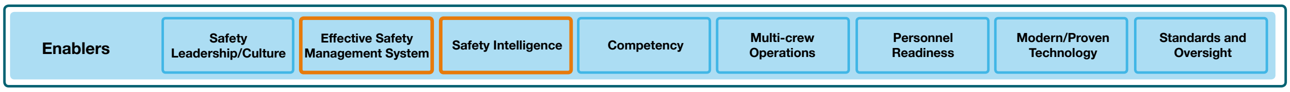
The aircraft operator and the AMO both have occurrence reporting systems in place.

17C. Processes and practices

17C.1 A structured occurrence reporting system that is integral to the SMS 690-1 – SMS, Section 8 - Incident Reporting, Investigation and Learning

Other references

- ICAO Annex 19 Chapter 5
- HeliOffshore Safety Performance Model



18. Maintenance Check Flights

18A. Purpose

Ensuring aircraft are airworthy.

18B. Expectations

The aircraft operator has documented procedures for Maintenance Check Flights (MCF).

18C. Processes and practices

18C.1 Maintenance check flights are carried out as required by

- 18C.1.1 the Aircraft Maintenance Manual (AMM)
- 18C.1.2 As required by the operator's continuing airworthiness management after maintenance
- 18C.1.3 For verification of a successful defect rectification or to assist with fault isolation or troubleshooting.

18C.2 Maintenance check flights are performed by competent and trained Flight Crew, appropriate for the complexity of the aircraft and the level of the maintenance check flight required.

18C.3 A safety briefing is carried out prior to the MCF which considers the risks associated with the flight.

Other references

- European Union Aviation Safety Agency (EASA) Opinion 01/2017. *Maintenance check flights.* 8 March 2017. https://www.easa.europa.eu/document-library/opinions/opinion-012017
- UK CAA CAP 1038 – Check Flight Handbook
- BARSOHO BIG – Section 2.4 Airworthiness Management
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

MAINTENANCE FACILITES AND STORES

19. Maintenance facilities - General

19A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

19B. Expectations

Maintenance facilities are adequate for the task.

19C. Processes and practices

19C.1 Maintenance facilities are capable of enclosing the largest aircraft for which the AMO or operator is rated.

19C.2 Specialised workshops are segregated to ensure that environmental or work area contamination is unlikely to occur.

19C.3 Adequate office facilities are available for personnel and particularly those engaged in the management of quality, planning, and technical records.

19C.4 Maintenance facilities have lighting suitable for the task and provide protection from adverse weather conditions.

19C.5 A FOD prevention programme is in place in the maintenance facilities.

Other references

- ICAO Annex 8 Part II Chapter 6.5
- ICAO Doc 9760 Chapter 10.6
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

MAINTENANCE FACILITES AND STORES

20. Maintenance facilities - Working conditions

20A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

20B. Expectations

The AMO ensures that personnel work safely in appropriate conditions

20C. Processes and practices

20C.1 Personnel are equipped with appropriate clothing for work in the prevailing environmental conditions.

20C.2 Personnel are equipped with appropriate PPE and provided with adequate instructions for its use.

20C.3 A "Working at Height" policy has been established and appropriate equipment (PPE, access equipment, stands, lifts, harnesses etc.) is provided.

20C.4 For maintenance of aircraft, hangars are not essential, but a hangar or other shelter is used during inclement weather (e.g., outside air temperatures <5°C or >40°C, during snowfall, heavy rain, hail or sandstorm).

20C.5 The maintenance working environment is such that the particular maintenance or inspection tasks can be carried out without environmentally-caused hazards to the work process or maintenance personnel, or significant distractions.

Other references

- ICAO Annex 8 Part II Chapter 6.5
- ICAO Doc 9760 Chapter 10.6
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

MAINTENANCE FACILITES AND STORES

21. Aircraft components/material management – Equipment and tools

21A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

21B. Expectations

The AMO has a process for the control of tools and equipment.

21C. Processes and practices

21C.1 All tools and equipment are made available during the execution of maintenance as specified in the OEM's maintenance data. Such tools and equipment are supplied by the organisation conducting the maintenance and are not privately owned.

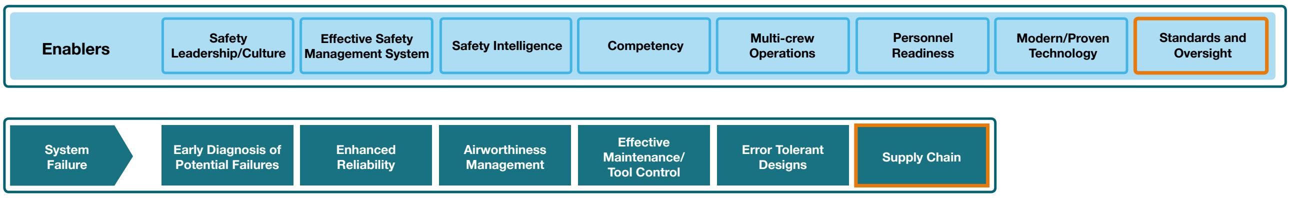
21C.2 All tools and equipment are subject to a control process to identify the user, the item's whereabouts and the aircraft concerned; the process includes a reconciliation, daily or prior to an aircraft's release for service, whichever comes first.

21C.3 A process is in place to track tools and equipment that require inspection, or service or calibration, and a system of labelling all such tools and equipment is established to give information on when the next inspection, service or calibration is due, and/or if the item is unserviceable for any other reason. Inspection, calibration, or servicing procedures for all such tools and equipment comply with manufacturers' instructions, regulatory requirements and/or applicable industry standards.

21C.4 When a remote outstation is set up, all necessary equipment and supplies are available on site according to the authorised level of maintenance.

Other references

- HeliOffshore Safety Performance Model



MAINTENANCE FACILITES AND STORES

22. Aircraft components/material management – Bonded, quarantine and inflammables storage areas

22A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

22B. Expectations

The AMO has suitable aircraft parts, quarantine and inflammables/explosive storage areas.

22C. Processes and practices

22C.1 Storage facilities for serviceable aircraft components are clean, well-ventilated, and maintained at a constant dry temperature to minimise the effects of condensation.

22C.2 Unauthorised access to serviceable parts is prevented.

22C.3 Manufacturer's storage recommendations are followed, when available. Instructions are available for items requiring special handling.

22C.4 Dedicated and clearly identified areas are provided to properly segregate incoming, unserviceable and serviceable material.

22C.5 Parts certified as fit to be used on or fitted to an aircraft are labelled (tagged) 'Serviceable' and held in a bonded store awaiting allocation to an aircraft.

22C.6 Parts not yet certified or parts that have failed certification, have reached their life limited expiry date or have been damaged are held in a quarantine store until they are disposed of in an appropriate manner (e.g., returned to supplier, recertified, repaired, scrapped).

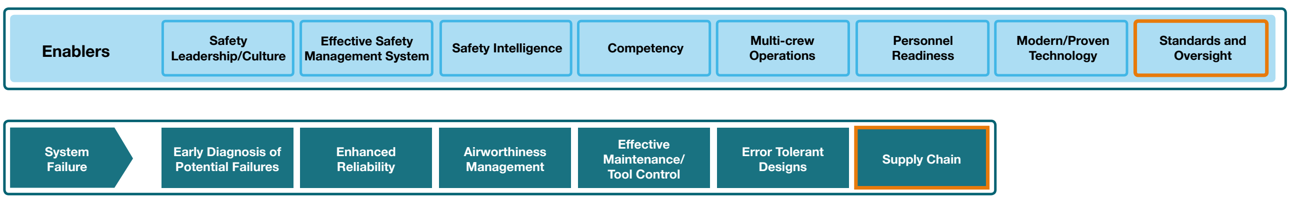
22C.7 Inflammable and explosive materials, such as paints and lubricants (may include some chemicals) are stored in a properly constructed fireproof storage compartment which is built and equipped to meet the local fire regulations.

22C.8 There is a programme to control parts limited by shelf life.

22C.9 There is a process for the identification and disposal of unserviceable parts, materials, tools, and equipment.

Other references

- ICAO Annex 8 Part II Chapter 6.5
- HeliOffshore Safety Performance Model



MAINTENANCE FACILITES AND STORES

23. Aircraft components/material management – Responsibilities of stores personnel

23A. Purpose

Ensuring maintenance is conducted to the approved Maintenance Program and Standards.

23B. Expectations

The AMO has defined the responsibilities of stores personnel.

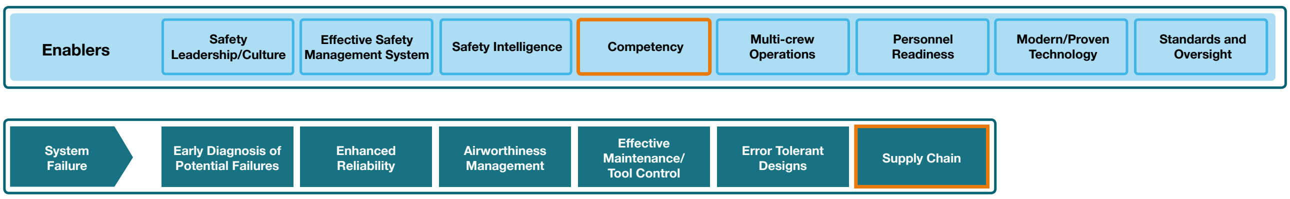
23C. Processes and practices

23C.1 Stores personnel are trained and competent.

23C.2 Incoming components/material are inspected to ensure compliance with company procedures to include shipping damage and proper certification. Components with a time interval or life limit have paperwork quality reviewed and are processed per company procedures. Acceptance into supply or movement to quarantine will be permanently recorded by name or company identifier electronically.

Other references

- ICAO Annex 8 Part II Chapter 6.6.5
- HeliOffshore Safety Performance Model



MAINTENANCE FACILITES AND STORES

24. Maintenance - Aircraft fuel tank checks

24A. Purpose

Ensuring the quality of fuel dispensed to aircraft is acceptable.

24B. Expectations

Aircraft fuel tanks are checked for quality.

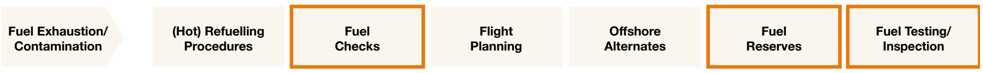
24C. Processes and practices

24C.1 Aircraft fuel tank checks are carried out daily as specified by the airframe manufacturer.

24C.2 Water in suspension tests are carried out using a recognised process and samples are retained for 24 hours.

Other references

- HeliOffshore Safety Performance Model



MAINTENANCE PERSONNEL

25. Maintenance personnel general requirements – Fatigue prevention

25A. Purpose

Ensuring maintenance personnel are alert and fit for work.

25B. Expectations

A fatigue management programme is in place for maintenance personnel.

25C. Processes and practices

25C.1 The fatigue management programme complies with national legislation.

25C.2 The following minimum standard is applied to all engineering staff unless national legislation is more restrictive:

24C.1.1 Total work periods do not exceed 12 hours in any 24-hour period. Where it is essential that the working period is extended, the Head of Maintenance approves it on a case-by-case basis.

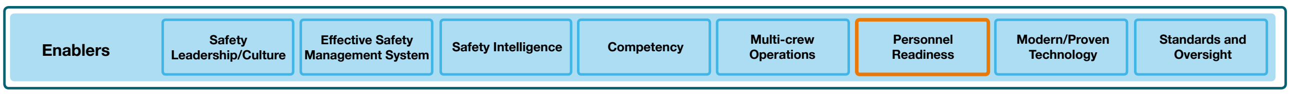
24C.1.2 Each full working shift is followed by a minimum 8-hour rest period. When working a 24-hour split shift online operations, at least 6 hours rest is provided excluding travel. There is a minimum of 7 days off per month of which at least 4 are in a minimum of two-day periods. When the location or climate is arduous, the rest period is increased to minimise fatigue.

25C.3 All maintenance staff will subject to a recurrent medicals, at minimum of two years, and all staff are deemed to be medically fit for employment, unless national legislation is more restrictive.

25C.4 A process is in place which defines the required man hours for each maintenance task, and links this to maintenance planning and forecasting.

Other references

- UKCAA CAA PAPER 2002/06
- Work Hours of Aircraft Maintenance Personnel
- HeliOffshore Safety Performance Model



MAINTENANCE PERSONNEL

26. Maintenance personnel – Qualifications and experience

26A. Purpose

Ensuring personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

26B. Expectations

Maintenance management and personnel are appropriately qualified, experienced and competent for the task

26C. Processes and practices

26C.1 An accountable person is appointed to manage all maintenance activities performed by the Continuing Airworthiness Organisation or AMO, whether these are performed in-house or by a contracted organisation.

26C.2 Competence and experience requirements for these appointments and other supervisory, licensed, and authorised staff are documented.

26C.3 Personnel carrying out aircraft maintenance hold appropriate licences and endorsements.

26C.4 In addition, a system of local approvals exists whereby the operator or maintenance organisation approves the individual to exercise the privileges granted by the licence and/or endorsements held on the range of equipment operated or maintained by that organisation.

26C.5 Such approvals are granted following formal type training and/or local on-the-job training/evaluation and tracked in an appropriate process.

Other references

- ICAO Annex 8 Part II Chapter 6.6
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

MAINTENANCE PERSONNEL

27. Maintenance personnel – Training

27A. Purpose

Ensuring personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

27B. Expectations

There is an appropriate training programme for continuing airworthiness and maintenance personnel.

27C. Processes and practices

27C.1 There is a training programme which provides competent personnel with appropriate initial and continuation training as defined by their roles and responsibilities and includes details of the accepted training providers, training syllabi and persons/organisations responsible for training.

27C.2 A training and authorisation record is maintained for all personnel.

27C.3 All maintenance personnel receive formal training and have factory or equivalent level training on the type of aircraft to be used.

27C.4 All training is tracked in an appropriate process.

Other references

- ICAO Annex 8 Part II Chapter 6.6.5
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

MAINTENANCE PERSONNEL

28. Maintenance personnel – Continuation/recurrent training

28A. Purpose

Ensuring personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience.

28B. Expectations

Continuing airworthiness

28C. Processes and practices

28C.1 Continuation/recurrent training is conducted at least every three years and includes as a minimum:

- 27C.1.1 Type Specific Training
- 27C.1.2 Changes in relevant regulatory requirements
- 27C.1.3 Organisational procedures
- 27C.1.4 Human factors issues identified from any internal or external analyses of incidents
- 27C.1.5 Information on relevant AD/SBs or similar documents issued since the last training session
- 27C.1.6 Experience from incidents and investigations, whether internal or external

28C.2 All training is tracked in an appropriate process.

Other references

- ICAO Annex 8 Part II Chapter 6.6.5
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

MAINTENANCE PERSONNEL

29. Maintenance personnel – Competence Assessment

29A. Purpose

Ensuring personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

29B. Expectations

Continuing airworthiness and maintenance personnel are subject to periodic competence assessments.

29C. Processes and practices

29C.1 Continuing airworthiness and maintenance personnel are subject to competence assessments at least every 3 years see 690-1 – SMS, Section 12, Training and Education

Other references

- ICAO Annex 8 Part II Chapter 6.6.4
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

MAINTENANCE PERSONNEL

30. Maintenance personnel – Supervision of unlicensed and recently licensed maintenance personnel

30A. Purpose

Ensuring personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

30B. Expectations

There is adequate supervision of maintenance work and Certificates of Release to Service.

30C. Processes and practices

30C.1 Where organisations employ a mix of licensed, unlicensed or recently licensed personnel, the proportion of those having Certificate of Release to Service (CRS) privileges to others is sufficiently high to ensure adequate supervision of work is provided at all times.

Other references

- ICAO Annex 8 Part II Chapter 6.6.3
- HeliOffshore Safety Performance Model

Enablers	Safety Leadership/Culture	Effective Safety Management System	Safety Intelligence	Competency	Multi-crew Operations	Personnel Readiness	Modern/Proven Technology	Standards and Oversight

HUMS

31. HUMS - Equipment

31A. Purpose

Ensuring the early detection of impending critical failures to facilitate timely corrective action.

31B. Expectations

Helicopters are fitted with an approved HUMS system.

31C. Processes and practices

31C.1 The HUMS System is capable of monitoring the rotor and rotor drive systems. For detailed specification 690-5 – Equipment Fit, Section 9C

31C.2 The HUMS system is certified to CS-29.1465;

31C.3 The system is OEM supported.

Other references

- HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0)
- HeliOffshore Safety Performance Model

HUMS

32. HUMS – Download and primary analysis

32A. Purpose

Ensuring the early detection of impending critical failures to facilitate timely corrective action.

32B. Expectations

Documented procedures for the download and primary analysis of HUMS data are established.

32C. Processes and practices

32C.1 The HUMS download and initial analysis result are recorded and certified in the aircraft technical log or similar document.

32C.2 The aircraft dispatch procedure for flight following the download and initial analysis details and includes the following requirements for action

- 31C.2.1 Where there are no HUMS exceedances – the aircraft is clear for dispatch with no further action
- 31C.2.2 With a yellow, amber, or intermediate HUMS exceedance – the dispatch of an aircraft with an existing alert is subject of either a maintenance action which is recorded and certified, or to control process within the operator's continued airworthiness organisation, a record of which is in the aircraft approved documentation.
- 31C.2.3 With a red or high HUMS exceedance – the aircraft is not dispatched until a full analysis and, where necessary, maintenance investigation has been completed and any subsequent defect rectification certified, and the aircraft released to service.

Other references

- HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0)
- HeliOffshore Safety Performance Model

HUMS

33. HUMS – Download periodicity – Normal monitoring

33A. Purpose

Ensuring the early detection of impending critical failures to facilitate timely corrective action.

33B. Expectations

The periodicity for the download and initial analysis is clearly defined.

33C.Processes and practices

33C.1 The HUMS is downloaded and an initial line analysis, to review threshold alerts, is conducted at the following periodicities:

- 32C.1.1 For offshore flights – on every return to the Main Operating Base (HeliOffshore HUMS Recommended Practice definition), whether for passenger or crew change or for shut down
- 32C.1.2 For operations where the aircraft routinely returns to the operating base at a high frequency, due to short sector lengths, the download frequency can be extended out to a period not exceeding 10 hours of elapsed flying time.
- 32C.1.3 Where aircraft are based offshore, in remote locations, or detached to another base, arrangements are made using portable ground stations and platform internet connections to provide an equivalent capability where practicable. The total time between downloads is at a minimum daily.

Other references

- HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0)
- HeliOffshore Safety Performance Model

34. HUMS – Unserviceability

34A. Purpose

Ensuring the early detection of impending critical failures to facilitate timely corrective action.

34B. Expectations

The operator has defined a MEL, MDS, or equivalent document which incorporates HUMS equipment.

34C. Processes and practices

34C.1 The MEL, MDS, or equivalent document details the HUMS equipment that can be temporarily unserviceable, and includes associated operating conditions, limitations, or procedures as applicable.

34C.2 System unserviceability and subsequent deferment of unserviceable channels according to the MEL is based upon the following:

33C.2.1 The main system, i.e., Data Acquisition Unit or Data Acquisition Processing Unit (DAPU), Bearing Monitor Unit (BMU) or similar, is serviceable.

33C.2.2 The unserviceability or unavailability of any other single component of the system, including individual accelerometers, is:

- Failure while Close Monitoring: **0 (zero) flying hours**
- Failure while under Normal Monitoring: **15 flying hours**.

34C.3 Deferment period for individual accelerometers or components are tracked as separate defects.

Other references

- Industry Recommended Practice - HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0)
- HeliOffshore Safety Performance Model

35. HUMS – Support Processes – Training and Data Management

35A. Purpose

Ensuring the early detection of impending critical failures to facilitate timely corrective action.

35B. Expectations

The necessary supporting processes for the effective use of HUMS are in place.

35C. Processes and practices

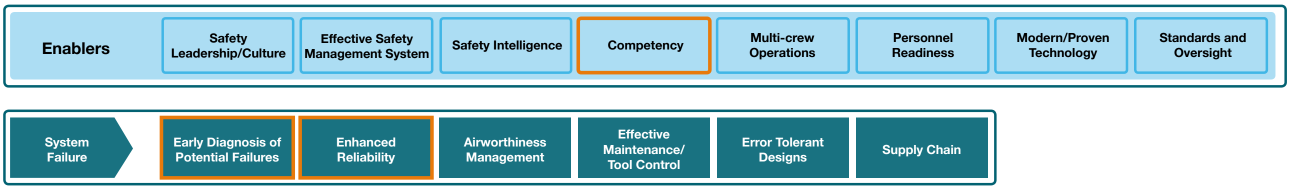
35C.1 The support processes for HUMS are managed in accordance with the HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0), including:

- 34C.1.1 Acronyms – typical HUMS processes, etc.
- 34C.1.2 Definitions – Including personnel typically authorised to review, analyse, and certify HUMS data
- 34C.1.3 Scope – clarification of terms, etc.
- 34C.1.4 Ground Station Software and Data Management – databases, hardware processes, etc.
- 34C.1.5 Download and Primary Analysis – excepting areas above where additional IOGP guidance is provided
- 34C.1.6 HUMS Data Collection
- 34C.1.7 Communication – internal, external, etc.
- 34C.1.8 Automated Detection Tools and Web Portals – interconnectivity, system use, OEM instructions
- 34C.1.9 System Performance Reports – original equipment Manufacturer/Overhaul Facility Support, Defect Trending Reports
- 34C.1.10 Responsibilities and Process Descriptions – HUMS staff responsibilities, process descriptions, etc.
- 34C.1.11 Training – Defines training for all staff with HUMS responsibilities.
- 34C.1.12 Management Oversight – corporate oversight, departmental oversight, line level oversight
- 34C.1.13 Quality Assurance – audit plan, documentation, etc.
- 34C.1.14 Appendices – Include QA Checklists for HUMS

HUMS

Other references

- Industry Recommended Practice - HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0)
- HeliOffshore Safety Performance Model



36. HUMS – In-Flight data transfer

36A. Purpose

Ensuring the early detection of impending critical failures to facilitate timely corrective action.

36B. Expectations

In-flight data transfer, or a similar process, which allows HUMS data to be transmitted to a base is in place, if available for the aircraft type and region.

36C. Processes and practices

36C.1 The data transfer system allows:

- 36C.1.1 Remote (Wireless or other means) downloads
- 36C.1.2 Inflight Exceedances to be transmitted to a base

36C.2 Procedures and training are in place for any communication with the flight crew.

36C.3 Relevant information, if applicable, passed to the flight crew is assessed by a licenced engineer, based on approved procedures and maintenance data.

Other references

- Industry Recommended Practice - HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0)
- HeliOffshore Safety Performance Model

International Association of Oil & Gas Producers

IOGP REPORT 690-5

Helicopter and Equipment

1. Certification Standard

1A. Purpose

Ensuring the relative merits of safety features, design standards and service experience are assessed so as to select reliable and resilient aircraft and equipment, suitable for the intended operations.

1B. Expectations

Contracted helicopters meet an appropriate certification standard.

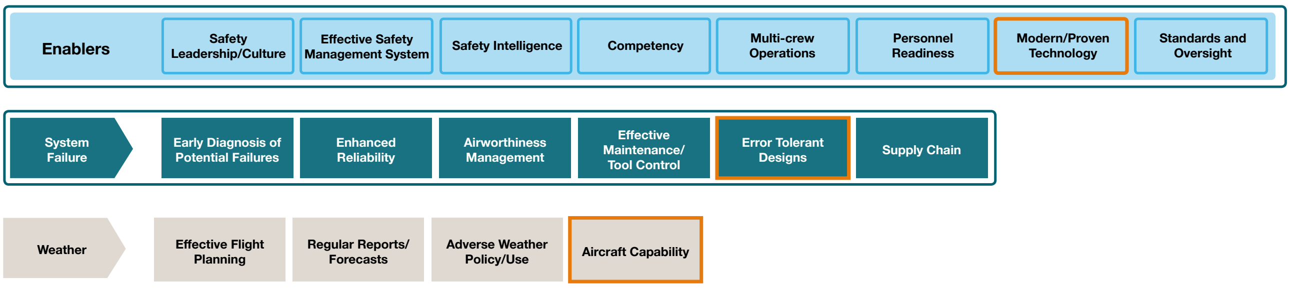
1C. Processes and Practices

1C.1 Contracted aircraft are certificated to one of the following specifications:

- 1C.1.1 Code of Federal Regulations Title 14 Part 29 – Airworthiness Standards Transport Category Rotorcraft (FAR 29) Amendment 45
- 1C.1.2 Joint Airworthiness Regulations 29 (JAR 29) Change 1
- 1C.1.3 European Aviation Safety Agency (EASA) Certification Specifications, Acceptable Means of Compliance for Large Rotorcraft (CS-29) Initial issue
- 1C.1.4 FAR 27 Amendment 31
- 1C.1.5 JAR 27, Issue 1
- 1C.1.6 CS-27, Initial issue
- 1C.1.7 Later equivalent standards.

Other References

- Norske Olje & Gas 066 Chapter 6.1
- BARSOHO BIG - 1.7: Modern/Proven Technology
- HeliOffshore Safety Performance Model



2. Instrument Flight Rules (IFR) Flights

2A. Purpose

Ensuring the relative merits of safety features, design standards and service experience are assessed so as to select reliable and resilient aircraft and equipment, suitable for the intended operations.

2B. Expectations

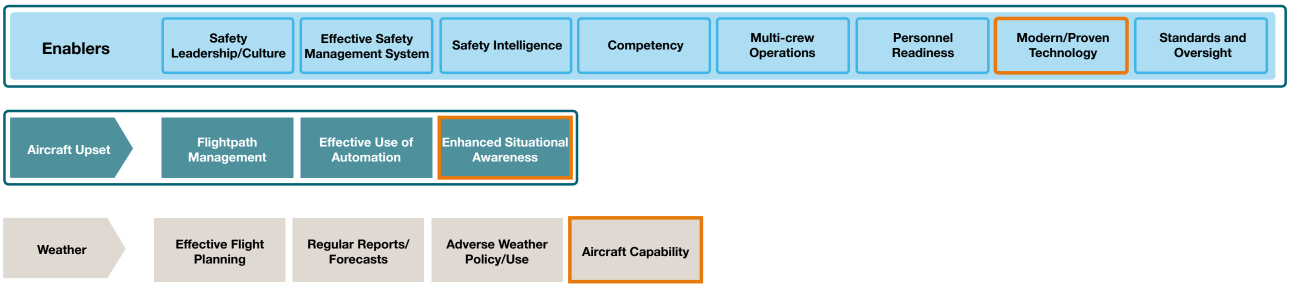
Contracted helicopters are equipped for IFR operations.

2C. Processes and Practices

2C.1 Contracted aircraft are fully equipped for IFR Operations relevant to the region of operations.

Other references

- ICAO Annex 6 Vol 3 Chapter 4.4
- HeliOffshore Safety Performance Model



3. Autopilot

3A. Purpose

Ensuring the relative merits of safety features, design standards and service experience are assessed so as to select reliable and resilient aircraft and equipment, suitable for the intended operations.

3B. Expectations

Contracted helicopters are equipped with appropriate flight automation.

3C. Processes and Practices

3C.1 Contracted aircraft have a four-axis Automatic Flight Control System (AFCS)

3C.2 For further information and operational requirements see 690-2 – Aircraft Operations Section 5C.

Other references

- ICAO Annex 6 Chapter 4.4.3
- HeliOffshore Flightpath Management Recommended Practices (HO-FPM-RP-v2.0)
- HeliOffshore Safety Performance Model

4. Emergency Locator Transmitters (ELTs)

4A. Purpose

Ensuring the relative merits of safety features, design standards and service experience are assessed so as to select reliable and resilient aircraft and equipment, suitable for the intended operations.

4B. Expectations

Contracted aircraft are fitted with a compliant automatic fixed or deployable ELT, depending on the regulatory requirements of the operating region.

4C. Processes and Practices

4C.1 The ELTs are compliant with European Technical Standard Order (ETSO) C126b or later approved version;

4C.2 ELT/Crash Position Indicator (CPI) – has a minimum specification of Cosmicheskaya Systyema Poiska Aariynyich Sudov (COPAS)/Search and Rescue Satellite Aided Tracking System SARSAT 406 MHz capable, with an Identification Code registered to the aircraft and operator, GPS capability and can transmit on 121.5/243 MHz;

4C.3 The ELT is registered with the appropriate national agency and the responsible parties registered as ELT contacts are detailed in the aircraft operator's Emergency Response Plan.

Other references

- ICAO Annex 6 Vol 3 Chapter 4.7
- ICAO Annex 10 Vol 3
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

5. Underwater Locator Beacon (ULB)

5A. Purpose

Ensuring the relative merits of safety features, design standards and service experience are assessed so as to select reliable and resilient aircraft and equipment, suitable for the intended operations.

5B. Expectations

Contracted aircraft are fitted with an ULB.

5C. Processes and Practices

5C.1 The ULB has a minimum 90-day battery life and is compliant with ETSO C121b or later approved version.

5C.2 The ULB is attached to the CVR and FDR, or combined CVFDR.

Other references

- ICAO Annex 6 Vol 3 Appendix 4, Chapter 1
- HeliOffshore Safety Performance Model

6. Terrain Awareness Warning System/Helicopter Terrain Awareness Warning System (TAWS/HTAWS)

6A. Purpose

Ensuring the relative merits of safety features, design standards and service experience are assessed so as to select reliable and resilient aircraft and equipment, suitable for the intended operations.

6B. Expectations

Contracted aircraft are fitted with TAWS as a minimum.

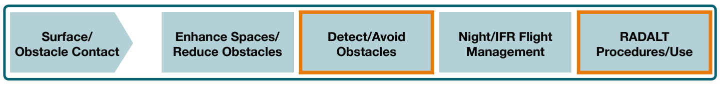
6C. Processes and Practices

6C.1 HTAWS is fitted when available for the aircraft type and region

6C.2 For further information and operational requirements see 690-2 – Aircraft Operations Section 6C

Other references

- ICAO Annex 6 Vol 3 Chapter 5.5
- HeliOffshore Safety Performance Model



7. Airborne Collision Avoidance Systems (ACAS)

7A. Purpose

The prevention of mid-air collisions.

7B. Expectations

Contracted aircraft are fitted with ACAS I.

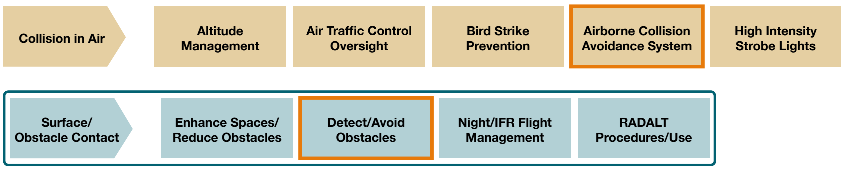
7C. Processes and Practices

7C.1 ACAS II is installed if available and certified for the aircraft type and supported by a Risk Assessment.

7C.2 For operational requirements see 690-2 – Aircraft Operations, Section 7C.

Other references

- BARSOHO Implementation Guidelines v4 7.4
- HeliOffshore Safety Performance Model



8. Helicopter Flight Data Monitoring (HFDM)

8A. Purpose

The use of flight data to obtain operational feedback and reduce risks.

8B. Expectations

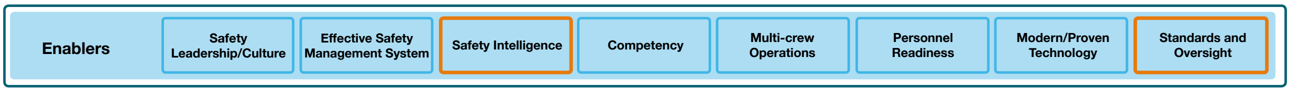
Contracted aircraft are fitted with HFDM recording equipment.

8C. Processes and Practices

8C.1 For further information and system requirements see 690-2 – Aircraft Operations, Section 8C

Other references

- HeliOffshore HFDM Recommended Practices (HO-HFDM-RP-v1.0)
- BARSOHO Implementation Guidelines v4 1.2
- HeliOffshore Safety Performance Model



9. Health and Usage Monitoring System (HUMS)

9A. Purpose

Ensuring the early detection of impending critical failures to facilitate timely corrective action.

9B. Expectations

Contracted aircraft have a HUMS system installed, which is OEM supported and meets the documented certification requirements, such as CS-29.1465.

9C. Processes and Practices

9C.1 The HUMS monitor vibration data of the following, using a combination of spectrum analysis and advanced diagnostic (proprietary signal processing) techniques.

9C.2 It includes a diagnostic capability for every dynamic component in the drive train:

- 9C.2.1 Engine to main gearbox input drive shafts
- 9C.2.2 Main gearbox shafts, gears, and bearings
- 9C.2.3 Accessory gears, shafts, and bearings
- 9C.2.4 Tail rotor drive shafts and hanger bearings
- 9C.2.5 Intermediate and tail gearbox gears, shafts, and bearings
- 9C.2.6 Main and tail rotor track and balance
- 9C.2.7 Engine health

9C.3 For further information and system operational requirements see 690-5 – Helicopter and Equipment, Sections 30, 31, 32, 33 and 34.

Other references

- ICAO Annex 6 Vol 3 Chapter 4.15
- HeliOffshore HUMS Best Practice Guide
- EASA CS29.1465
- CAP 753 - Vibration Health Monitoring
- HeliOffshore Safety Performance Model

10. Life rafts

10A. Purpose

Ensuring occupants can survive after a ditching event.

10B. Expectations

Contracted aircraft are fitted with life rafts compliant with ETSO C70 [or ETSO 2C505] sufficient for the maximum number of persons on board.

10C. Processes and Practices

10C.1 Helicopters with a Maximum Operational Passenger Seating Capacity (MOPSC) of 9 or less have at least one life raft certified to carry all aircraft occupants.

10C.2 Helicopters with a MOPSC of 10 or more have two life rafts, each certified for 50% overload to enable any one life raft to be used by all occupants.

10C.3 All life rafts are equipped with an ELT which has COSPAS-SARSAT with an Identification Code registered to the aircraft and operator, 406 MHz, GPS, and transmits on 121.5/243 with voice capability, in addition to an approved offshore survival kit. All loose equipment is attached to the raft with a lanyard.

10C.4 A minimum of one life raft is externally mounted.

10C.5 For external rafts, the primary deployment method is by single action from the normal crew positions; the secondary deployment is from the passenger compartment with the cabin in an upright attitude; and deployment is possible from outside the helicopter when in either an upright or inverted attitude.

10C.6 All life rafts are reversible or self-righting, double chambered, and capable of being tethered to the aircraft and be readily accessible in the event of ditching.

Other references

- ICAO Annex 6 Vol 3 Chapter 4.5.2
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

11. Cabin push-out windows (ditching emergency exits)

11A. Purpose

Ensuring the occupants can escape in the event of a capsize or submersion.

11B. Expectations

Helicopters are fitted with emergency push-out windows in locations suitable for emergency underwater egress.

11C. Processes and Practices

11C.1 Emergency push-out windows and Type IV exits are installed in all locations that are suitable for emergency underwater egress (typically those greater than 430mm by 350mm).

11C.2 Hand holds are provided adjacent to assist the location and operation of emergency exits

11C.3 All push-out windows and Type IV Emergency Exits are clearly highlighted with Helicopter Emergency Escape Lighting (HEEL) – see 690-5 – Helicopter and Equipment, Section 12 – Emergency Exit Lighting.

11C.4 There is a suitable means of opening that is resistant to inadvertent operation and which is suitably marked by placards and contrasting colour(s).

Other references

- ICAO Annex 8 Part II Chapter 6.3
- ICAO Annex 6 Part 3 Ch 9.2
- EASA AMC1 SPA.HOFO.165(h) Additional procedures and equipment for operations in a hostile environment.UK CAA CAP 562 Civil Aircraft Airworthiness Information and Procedures.
- UK CAA CAP 747
- RAF IAM (Report No.528) and University of Loughborough Report on body size for the Joint Aviation Authorities (JAA) in 2001
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	**Underwater Escape**	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

12. Emergency Exit Lighting

12A. Purpose

Ensuring the occupants can escape in the event of a capsize or submersion.

12B. Expectations

Helicopter Emergency Exit Lighting (HEEL) systems are fitted.

12C. Processes and Practices

12C.1 Emergency exit marking systems which identify emergency escape hatches, exits and push-out windows by illuminating their perimeter (e.g. HEEL path lighting) and is automatically activated following the flooding of the cabin.

Other references

- BARSOHO Implementation Guidelines v4 20.3
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	**Underwater Escape**	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

13. Seating layout

13A. Purpose

Ensuring the occupants can escape in the event of a capsize or submersion.

13B. Expectations

Seat rows are aligned with push out windows or emergency exits.

13C. Processes and Practices

13C.1 Passengers are seated no more than one seat from a push out window or emergency exit.

Other references

- BARSOHO Implementation Guidelines v4 20.3
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

14. Tail camera

14A. Purpose

To improve situational awareness.

14B. Expectations

A forward-facing tail camera is fitted, if available.

14C. Processes and Practices

14C.1 A forward-facing tail camera with presentation of the picture in the cockpit is fitted, where available for the aircraft type.

Other references

- BARSOHO Implementation Guidelines v4 4.2
- HeliOffshore Safety Performance Model

15. Cockpit camera

15A. Purpose

To prevent recurrence of accidents or incidents.

15B. Expectations

A cockpit camera is fitted.

15C. Processes and Practices

15C.1 A cockpit camera, with recording function is fitted, where available for the aircraft type.

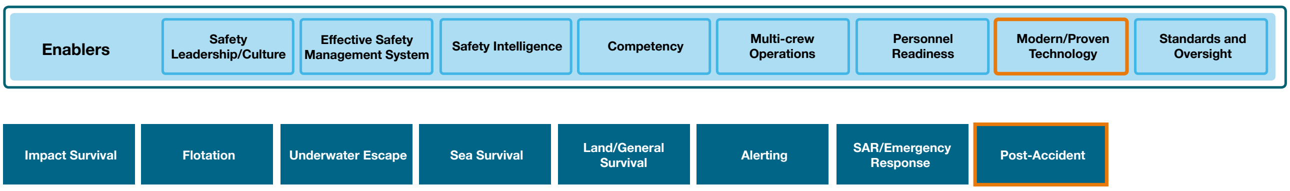
15C.2 Procedures are in place to use the data from cockpit cameras for accident and incident investigation.

15C.3 Procedures are in place to safeguard the recordings and prevent unauthorised use.

15C.4 Maintenance requirements are in place that periodically check the serviceability of the camera system.

Other references

- US National Transportation Safety Board, Safety Recommendation A-00-031: https://www.ntsb.gov/_layouts/ntsb.recsearch/Recommendation.aspx?Rec=A-00-031
- Fact Sheet – FAA's Response to NTSB's "Most Wanted" Safety Recommendations https://www.faa.gov/news/fact_sheets/news_story.cfm?newsId=11186
- Transportation Safety Board of Canada. Air transportation safety investigation A18W0116. https://www.bst-tsb.gc.ca/eng/enquetes-investigations/aviation/2018/a18w0116/a18w0116.html
- HeliOffshore Safety Performance Model



16. Flotation gear

16A. Purpose

Ensuring the aircraft floats after a ditching or survivable water impact.

16B. Expectations

Contracted Aircraft are fitted with automatically deployed floatation equipment.

16C. Processes and Practices

16C.1 Flotation equipment fitted is appropriate to Significant Wave Height (SWH) conditions in the area of operations

16C.2 CAT operations are not conducted with SWH over the ditching certified capability – see 690-2 Aircraft Operations, Section 22C.2.

16C.3 Procedures are in place for Float Arming during offshore flying.

Other references

- ICAO Annex 6 Vol 3 Chapter 4.5.1
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

17. Flight Following

17A. Purpose

Ensuring timely alerting and location identification to aid SAR services.

17B. Expectations

A satellite flight following, or ADS-B system is installed.

17C. Processes and Practices

17C.1 A satellite flight following, or ADS-B system is installed.

17C.2 See 690-2 Aircraft Operations – Section 35.

Other references

- BARSOHO Implementation Guidelines v4 20:6
- Industry recommended practice – ERP Section 2
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

18. Passenger seats

18A. Purpose

Ensuring occupants survive a crash impact.

18B. Expectations

High-back Passenger Seats are fitted with four-point Upper Torso Restraint (UTR) Harnesses

18C. Processes and Practices

18C.1 Seat belts consist of four separate straps.

18C.2 Loop type straps present a snagging hazard and are not used.

Other references

- ICAO Annex 6 Vol 3 Chapter 4.12
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

19. Survival kits

19A. Purpose

Ensuring the occupants can survive either in a raft or in the water.

19B. Expectations

Survival Kits are carried.

19C. Processes and Practices

19C.1 Survival Kits appropriate to the area of operations are carried.

Other references

- ICAO Annex 6 Vol 3 Chapter 4.5.2
- HeliOffshore Safety Performance Model

Impact Survival	Flotation	Underwater Escape	Sea Survival	Land/General Survival	Alerting	SAR/Emergency Response	Post-Accident

20. High Intensity Strobe Lights (HISL)

20A. Purpose

Ensuring visibility of the aircraft to all other traffic.

20B. Expectations

High Intensity Strobe Lights (HISL) are fitted, when available.

20C. Processes and Practices

20C.1 May be exempt by risk assessment for low traffic areas.

20C.2 Restrictions are placed on use of HISL on the ground.

Other references

- ICAO Annex 8, Part IV, Chapter 7.4.1
- HeliOffshore Safety Performance Model

21. Obstacle detection aids

21A. Purpose

Ensuring sufficient clearance from obstacles for safe operation.

21B. Expectations

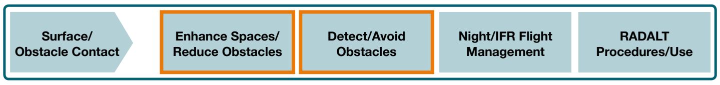
Obstacle detection aids are fitted, if available and necessary.

21C. Processes and Practices

21C.1 Obstacle Detection Aids, where available for the aircraft type and when assessed as appropriate by Risk Assessment are fitted.

Other references

- BARSOHO Implementation Guidelines v4 Section 4.2;
- HeliOffshore Safety Performance Model



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