International Association of Oil & Gas Producers

REPORT 690 | JUNE 2023

Offshore Helicopter Recommended Practices

Acknowledgements

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About

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

Feedback

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REPORT
690

JUNE
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Offshore Helicopter Recommended Practices

Revision history

VERSION	DATE	AMENDMENTS
1.3	June 2023	Numerous changes based on implementation feedback; see Introduction for details
1.2	August 2022	Numerous changes to align with the IOGP Oil and Gas Aviation Recommended Practices series
1.1	February 2021	Additional footnote added to Table 11-2
1.0	October 2020	First release

Contents

Introduction

This Report forms part of IOGP's Oil and Gas Aviation Recommended Practices (OGARP, also called the 69- series). The OGARP, developed in collaboration between oil and gas companies, aviation industry associations, and aircraft operators, provides a framework for effective management of a key material risk to the safety of personnel. Please see IOGP Report 69x – *Oil and gas aviation recommended practices overview* for a full description of the OGARP series and its implementation in the industry.

This Report, covering the operation of helicopters for offshore operations, is comprised of five modules: Safety Management Systems, Aircraft Operations, Support Operations, Engineering, and Helicopter and Equipment. These modules are further divided into sections covering the main activities associated with the delivery of aviation services. Each section has 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 Organization, or other subcontracted party (for example, a provider of ground support services such as passenger check-in and processing).

Summary of significant changes

IOGP Report 690 – Offshore Helicopter Recommended Practices V1.3 differs from previous versions of Report 690 and Report 590 in several areas. The key differences include:

Section	Change
690 all sections	V1.3 textual content changes compared to V1.2 have been marked with a vertical bar on the left side.
690 all sections	Editorial (minor) amendments and simple clarifications are not marked.
690-1 Section 2	A more detailed description of Just Culture and its use in incident investigation.
690-1 Section 8	A more detailed description of Just Culture and its use in incident investigation.
690-1 Section 11	Recommendation added for external contracted operations to comply with RP69x series.
690-1 Section 14	Recommendation added on the seating position of the Line Operations Safety Audit (LOSA) auditor.
690-1 Section 15	Clarified the scope of environment.
690-2 Section 1	Clarified the scope of coverage of the Air Operator Certificate (AOC).
690-2 Section 3	New section which includes recommendations on operations in the vicinity of windfarms.
690-2 Section 4	Added recommended practise for action and reporting when signs of substance abuse are recognized.
690-2 Section 5	Added recommendation for control guarding during coupled flight.
690-2 Section 8	A list of Key Performance Indicators to be measured and tracked in the management of Flight Data Monitoring programs.
690-2 Section 9	Clarification of which performance class to be used in which environment (onshore or offshore) and note added with Defined Limited Exposure (DLE) instructions.
690-2 Section 10	Added frequency requirements for Crew Personal Locator Beacons to 10C1.1.

Section	Change
690-2 Section 11	• A change from using "non-revenue" flights for certain training exercises to the use of "non-passenger carrying" flights. • Amendment to text in step 6 and renumbered to step 5. • Step 12 has been amended for upgrade to command; – The notes have been aligned for relevance to the specific bullet – The 25 hours offshore night has been repositioned to Step 12-night – Added the ICAO ATP night requirement of 100 hours • A clear definition of "Offshore flight time/experience" to include: – Providing energy passenger transportation services over open water – Helicopter hoist operations for sea pilot services and wind farms offshore – Offshore SAR • Amendment of note 5 to be specific for crew with other experience • Reorganized the notes in a more logical way.
690-2 Section 18	Amended 18C.4 for clarity.
690-2 Section 21	• Reorganized text for clarity. • Deleted the reference to note 1 (allowing reduced visibility) in table 21-2 Offshore VFR Minima for day (second line) and for night.
690-2 Section 26	Added the Operational Flight Plan and what should be covered.
690-2 Section 30	Recommendations added on the documentation and content of flight procedures detailed in Standard Operating Practices or Operations Manuals.
690-2 Section 34	Added recommendation that the flight crew perform an exterior aircraft inspection prior to each flight.
690-2 Section 35	Amended recommendations for when flight following system is not functioning.
690-2 Section 36	Recommendations on procedures during offshore installation operations such as perforation and cold flaring.
690-2 Section 37	Clarification of bird strike mitigation recommendations.
690-2 Section 40	• A relaxation of the recommendation that a simulator cannot be used to maintain night deck recency for two consecutive 90 day periods. • An additional recommendation for night offshore recency that three actual offshore cycles are flown in 365 days. • Added specifics for the training set-up in the simulator. • Deletion of the summer alleviation. • Added additional note to clarify the intend of recency practices.
690-2 Section 41	• Added objective that the simulator training program needs to cover all major emergencies of the contracted type. • A recommendation that aircraft operators develop a training program for flight crew for complex Maintenance Check Flights.
690-2 Section 42	Amended the scope for the rostering policy and rewritten the sequence.
690-2 Section 45	Amended and shortened to align with section 11 of 690-2. This section now specifically deals with the introduction of a new aircraft type.
690-2 Section 46	Expanded recommendations on the training and use of Crew Resource Management and Threat and Error Management.
690-2 Section 47	Added the requirement that Dangerous Goods (DG) training is also applicable to other crew and ground staff.
690-2 Section 51	Additional best practices for control guarding when other pilot leaves the cockpit and during Auxiliary Power Unit (APU) operations.

Section	Change
690-3 Section 2	Added recommendations to segregate check-in luggage.
690-3 Section 5	Recommendation that the seat belt extension is certified.
690-3 Section 7	More detailed recommendations on emergency escape, passenger briefing, including the brace position.
690-3 Section 14	Updated the recommendations for reporting of weather data from a helideck.
690-3 Section 19	Added section for training and competence of ground staff.
690-4 Section 2	Rewritten for clarity and simplicity.
690-4 Section 4	Added recommendations for the tracking of maintenance data.
690-4 Section 5	Added recommendation regarding notifying the Pilot-in-Command (PIC) of deferred defect information.
690-4 Section 6	Additional clarification and text for Aircraft Technical Log (ATL) and Aircraft Maintenance Programme (AMP).
690-4, Section 9	A simplification on the recommendations for Aircraft Maintenance Organization procedures.
690-4 Section 12	Added Foreign Object Debris (FOD) prevention procedures.
690-4 Section 13	Greater detail in the recommendations for Independent Inspections, including the prohibition of a single engineer independent inspection process.
690-4 Section 15	Improved recommendations on the process for managing Maintenance Observation Programmes.
690-4 Section 16	Reposition of the review of human factors into this section.
690-4 Section 18	A recommendation that aircraft operators develop a training program for flight crew for complex Maintenance Check Flights.
690-4 Section 21	Additional recommendation for tool security and tracking.
690-4 Section 24	Additional detailed recommendations on the processes for conducting aircraft fuel checks.
690-4 Section 25	• Deletion of the recommendation for recurrent medicals. • Change of minimum rest period for engineering staff after a full working shift from 8 hours to 10 hours.
690-4 Sections 27, 28 and 29	Recommendations on the training and competence assessment of maintenance personnel has been rationalised into one section, section 27.
690-5 Section 14	An amendment of the expectation with respect to safe escape from the helicopter. The recommendation that seat rows are aligned with push out windows/emergency exits has been moved to the processes and practices section.
690-5 Section 16	Greater detail on the installation and operation of cockpit cameras and the removal of the recommendation that cockpit cameras are crash resistant.
690-5 Section 22	Simplification of the recommendation that aircraft operators continuously improve aircraft systems. Examples of possible improvements have been removed to avoid confusion that the systems detailed were explicit requirements.

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 organization and incorporating all elements of 690-1 to manage significant safety risks to As Low As Reasonably Practicable (ALARP) levels.

1C. Processes and practices

1C.1 The SMS is compliant with National Aviation Authority (NAA) regulatory requirements and meets the intent of ICAO Annex 19, Appendix 2 - Framework for an SMS, and ICAO Doc 9859, Safety Management Manual (SMM), 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 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.

1C.3 Each air operator subcontractor maintains an effective SMS compatible with its own system, and that a documented process between SMSs is established.

Guidance documents

- ICAO Annex 19, Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B – Safety Management Systems for Aviation Service Providers
- 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 organizations 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 demonstrate responsibility for safety, actively participate in safety management throughout their organization and both educate and develop personnel in safety matters as well as holding them accountable for their actions.

2C. Processes and practices

2C.1 Leaders are accountable for the effective management and safety risks in their business. They:

- 2C.1.1 Know the safety risks associated with their position, responsibilities in their organization, and how they are managed.
- 2C.1.2 Take corrective action if the controls for a risk are ineffective.
- 2C.1.3 Communicate the aircraft operator's safety policies to their personnel and relevant subcontractors.
- 2C.1.4 Plan and make regular base visits to engage with their personnel and relevant sub-contractors about safety.

2C.2 Leaders demonstrate safety leadership through measurable actions. They:

- 2C.2.1 Participate in safety activities, team meetings, and safety programmes and campaigns.
- 2C.2.2 Act as a role model for safety compliance, intervene during day-to-day activities whenever safety requirements are not being met.
- 2C.2.3 Have a process to report safety issues, near misses and Stop Work events, and empower their personnel to use these processes.

2C.3 Leaders motivate, coach, and develop personnel to manage safety risks effectively. They:

- 2C.3.1 Provide constructive feedback to their personnel on their safety behaviours and performance.
- 2C.3.2 Evaluate the safety culture within their organization regularly.
- 2C.3.3 Develop their own competence and that of their team in line with their organization's requirements to manage safety risks effectively.
- 2C.3.4 Include safety behaviours in decisions about recruitment, performance, and personnel development.

2C.4 Leaders hold individuals accountable for their safety performance and behaviours. They:

2C.4.1 Monitor and reinforce compliance with their organization's procedures, applicable laws, and regulations and take appropriate action to correct deficiencies.

2C.4.2 Document and implement within the SMS a "Just Culture", based on ICAO Doc 9859, Section 3 "Safety Culture", where there is a distinction between acceptable and unacceptable behaviour, which is communicated to all employees, who know that their actions or omissions, commensurate with their training and experience, will not be punished.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- 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 that SMSs 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, financing, 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.

3C.3 A safety manager has been appointed.

3C.4 Clear lines of safety accountability are in place and documented throughout the organization, including a direct accountability for safety for all members of management, regardless of other duties, as well as of other staff.

3C.5 Any changes in key personnel directly involved in the SMS during execution of the services under contract requires notification to the Company.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providerss
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance
- CASA Part 119
- HeliOffshore Safety Performance Model

4. Key safety personnel

4A. Purpose

Ensuring that SMSs 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 There is a hierarchy of safety committees, appropriate to the size and complexity of the organization, with members appointed according to their expertise and responsibilities.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations.
- CASA Part 119.190
- HeliOffshore Safety Performance Model

5. Emergency response planning

5A. Purpose

Ensuring that SMSs 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 ERPs to meet the Company needs and response objectives covering credible scenarios.

5C.1.1 A policy is in place and agreed that co-ordinates the air operator and Company requirements, actions and responsibilities in responding to an emergency.

5C.2 The emergency response organization 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:

5C.5.1 Accident on arrival or departure

5C.5.2 Overdue aircraft

5C.5.3 Accident/Ditching en route

5C.5.4 Aircraft accident on a remote airstrip, landing site, helipad, or helideck

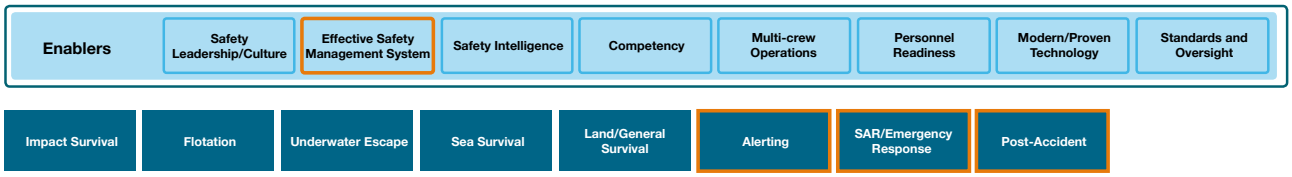
5C.5.5 Aircraft ditching in rescue range of a facility or vessel

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

5C.7 In addition, exercises test and validate bridging communications between the Company, the aircraft operator, other involved entities and all emergency services.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- ICAO Doc 9481 Emergency Response Guidance
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations.
- CASA Part 119
- HeliOffshore Safety Performance Model.



6. SMS documentation

6A. Purpose

Ensuring that SMSs 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. These processes are linked to more broadly documented procedures in the appropriate manuals for safety critical activities related to aircraft operations, including flight operations, aircraft maintenance, and ground operations.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- HeliOffshore Safety Performance Model

7. Safety risk assessment and hazard identification

7A. Purpose

Ensuring that SMSs 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) systems

7C. Processes and practices

7C.1 A Hazard and Risk Management system (HRM) is documented that reflects the size and complexity of the aircraft 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 worst-case credible scenario hazards.

7C.4 All the hazards identified are assessed using the aircraft operator's Risk Assessment (RA) process, and the assessment of these risks is documented in a Hazards and Effects Register.

7C.5 A demonstration is provided, within a documented format or software system, that all identified hazards are assessed, tracked, mitigated, and managed to ALARP.

7C.6 This demonstration:

- 7C.6.1 Shows the risk assessment rating assigned to each identified hazard.
- 7C.6.2 Links high rated hazards to specific barriers and controls in an appropriate manner (e.g., using a bow tie barrier management approach)
- 7C.6.3 Provides a document reference for the barriers and controls if said measure is procedural or training
- 7C.6.4. 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.7 The HRM is demonstrably linked to the aircraft operator's Safety Reporting and Investigation process and confirmation of implementation of mitigating actions

7C.8 A Remedial Action Plan is in place to close identified gaps.

7C.9 Establish and maintain an effective HRM review process, which includes a review of external accidents and incidents that are relevant to the operation.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- HeliOffshore Safety Performance Model.

8. Incident reporting, investigation, and learning

8A. Purpose

Ensuring that SMSs 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 are supported by a Just Culture and the systems in place allow for anonymous reporting to provide protection to the reporter.

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 aircraft operator allows access for investigations when agreed.

8C.4 All incidents are assessed using the aircraft operator's RA process.

8C.5 The investigation process is aligned with ICAO Annex 13, Aircraft Accident and Incident Investigation, such that it:

- 8C.5.1. Uses trained investigators, reviews the effectiveness of the HRM barriers and generates recommendations.
- 8C.5.2 Includes occurrences that are not required to be reported to the NAA but which are considered to provide valuable learning opportunities, such as high potential, near miss events.
- 8C.5.3 Aims to understand why an event happened and the contributing causes, by taking full account of human and organizational factors using human factors methodology (e.g., Human Factors Analysis and Classification System (HFACS[2])) as part of the investigation process. This considers:
  - 8C.5.3.1 Errors, mistakes, or violations
  - 8C.5.3.2 Pre-conditions relating to the operational environment
  - 8C.5.3.3 The physical and mental states of those involved
  - 8C.5.3.4 Organizational and team influences, interactions and culture
  - 8C.5.3.5 Management, leadership and supervisory factors
- 8C.5.4 Where possible, incident investigations are conducted jointly with the Company.

[2] The HFACS is a broad human error framework that was originally used by the US Air Force to investigate and analyse human factors aspects of aviation. The HFACS framework provides a tool to assist in the investigation process and target training and prevention efforts.

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 organization 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 Investigations enable the consistent application of Just Culture principles and apply process and tools for any event that may result in consequence management.

8C.9 Safety occurrences are shared with relevant industry safety bodies and as part of its continuous improvement, the organization uses safety events from the industry as part of its HRM analysis process.

Guidance documents

- ICAO Annex 19 Appendix 2.
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B – Safety Management Systems for Aviation Service Providers
- 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 organizations
- CASA Part 119
- IOGP Report 510 – *Operating Management System Framework*
- HeliOffshore Safety Performance Model

9. Safety performance monitoring

9A. Purpose

Ensuring that SMSs 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 organization

9C. Processes and practices

9C.1 Safety Performance Indicators (SPIs) are established to monitor and measure the safety performance of the organization, and the effectiveness of the SMS for continuous improvement.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- IOGP Report 510 – *Operating Management System Framework*
- HeliOffshore Safety Performance Model

10. Management of change

10A. Purpose

Ensuring that SMSs 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.

Guidance documents

- ICAO Annex 19 Appendix 2.
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- HeliOffshore Safety Performance Model

11. Continuous improvement - assurance

11A. Purpose

Ensuring that SMSs 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 and specialized activities, as well as any externally contracted operations or activities.

11C.4.1 Audits of externally contracted operations assess compliance with relevant IOGP 69x series recommended practices.

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

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.

Guidance documents

- ISO 9001: 2015, Quality Management Systems
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- ISO 19011:2018, Guidelines for auditing management systems
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- CASA Safety Management System resource kit: Booklet 3 - Safety Risk Management
- HeliOffshore Safety Performance Model

12. Training, competence, and education

12A. Purpose

Ensuring that SMSs 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 organization's safety policy and the principles and processes of the organization's SMS.

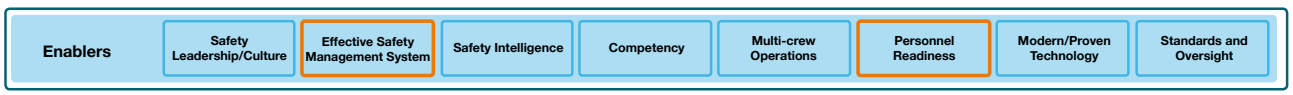
12C.2 Managers and supervisors understand the safety process, hazard identification, risk management and the management of change.

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 two-yearly recurrent training to ensure continued competence appropriate to the level of involvement in the SMS.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- HeliOffshore Safety Performance Model



13. Safety communication

13A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

13B. Expectations

Safety information is 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 based on a defined hierarchy of meetings that gives senior managers visibility of the SMS activity, in particular:

- 13C.4.1 Safety reporting and performance (review of KPIs and SPIs)
- 13C.4.2 The effectiveness of the HRM process
- 13C.4.3 Issues arising from the aircraft operator's QA process

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

13C.6 A "read and acknowledge" process is in place for the distribution of critical safety information.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- HeliOffshore Safety Performance Model

14. Line operations safety audit

14A. Purpose

The Aircraft Operator has a Line Operations Safety Audit (LOSA) programme in place to measure the management of human error in aviation and to inform the company SMS of the effectiveness of Standard Operating Procedures (SOPs), Crew Resource Management (CRM) and Threat and Error Management (TEM) training ensuring continuous improvement

14B. Expectation

The Aircraft Operator has a structured LOSA programme for multi-crew operations

14C. Processes and practices

14C.1 The LOSA programme is implemented by the aircraft operator with support from the Company.

14C.2 The LOSA programme complies with ICAO Doc 9803 – Line Operations Safety Audit (LOSA).

14C.3 The LOSA data is analysed and appropriate action plans implemented.

14C.4 LOSA observations are conducted periodically and a full observation cycle is conducted at a minimum every three years.

14C.5 A LOSA cycle on one type at one base is credited to another base to meet the three year cycle recommendation if an aircraft operator demonstrates that:

- 14C.5.1 The operation, training and Flight Data Monitoring (FDM) program of the type claiming credit at a different bases are harmonized in respect to crew procedures, training and checking and FDM event follow up.
- 14C.5.2 The lessons learned from the LOSA base are applied equally to the base claiming the credit.
- 14C.5.3 The environmental threats at the base claiming credit (weather, terrain, airspace, communications, type of operation and airspace etc) are substantially the same as the LOSA base.

Note: 1. Only LOSA cycles completed on the same aircraft type can be transferred.

14C.6 FDM and LOSA observations are analysed collectively for added insight.

14C.7 The LOSA observer has a jump seat or a forward-facing seat, positioned in such a manner that both pilots can be observed.

- 14C.7.1 The Company takes into account a possible payload and number of passenger seats lost during LOSA observed flights.

14C.8 For fixed wing operations with aircraft with a Maximum Operational Passenger Seating Capacity (MOPSC) of 19 or less a LOSA programme is to be agreed with the Company.

Guidance documents

- FAA AC 120-90
- ICAO Doc 9803 - Line Operations Safety Audit (LOSA)
- 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 Hazards to the environment, including pollution, noise, and waste, etc., have been captured in the HRM process and the associated controls are in place.

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

Guidance documents

- ISO 14001:2015, Environmental management systems
- HeliOffshore Safety Performance Model

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, the geographic area relevant to the contract, and up-to-date operations specifications.

1C. Processes and Practices

1C.1 The aircraft operator holds an AOC issued and approved by the National Aviation Authority (NAA). This includes aircraft types operated and the scope of the operation detailed in operations specifications.

1C.2 The aircraft operator has a suite of Operations Manuals (OM) with the necessary content, approved (or when applicable, accepted) by the NAA. This is in one or more volumes and includes or is supported by appropriate procedures. The OM covers normal and emergency operations and is suitable for the operational circumstances and the aircraft types operated.

1C.3 The aircraft operator demonstrates to the NAA that its management team, organizational 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.

Guidance documents

- ICAO Annex 6
- HeliOffshore Safety Performance Model – Common enabler – 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 AOC
- 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
- 2C.1.6 A person or third party responsible for aircraft maintenance
- 2C.1.7 A person responsible for managing ground operations
- 2C.1.8 Where the organization has more than one operating base, the management structure addresses the required responsibilities at all locations
- 2C.1.9 It is acceptable for a person to hold more than one of the above positions, if considered suitable and properly matched to the scale and scope of the operation

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

2C.3 In case of change of key personnel, see 690-1 Safety Management Systems, Section 10, Management of Change.

Guidance documents

- ICAO Annex 6
- HeliOffshore Safety Performance Model

3. Operations in the vicinity of windfarms

3A. Purpose

Ensuring operations towards or in the vicinity of windfarms are done safely

3B. Expectations

The Aircraft Operator has adequate procedures to enable safe operations

3C. Processes and Practices

3C.1 The aircraft operator documents procedures for operations to offshore facilities adjacent or embedded in offshore windfarms. As a minimum, these procedures cover:

- 3C.1.1 Safe distances and heights during approach and departure from obstacles accounting for One Engine Inoperative (OEI) conditions and climb gradients.
- 3C.1.2 Required flight conditions for visibility and cloud base.
- 3C.1.3 The possible effect of wake turbulence of the operating wind farm.

3C.2 The aircraft operator documents procedures for operations overflying offshore windfarms during construction and operation. As a minimum these procedures cover:

- 3C.2.1 Minimum safe altitudes, taking into account required flight path deviations in case of emergencies.
- 3C.2.2 For helicopters certified for (limited) icing conditions, procedures to meet the requirements for shedding ice at lower altitudes.

3C.3 The flight crew has access to detailed information regarding the lay-out, position, height, lights and supporting facilities of the windfarm.

3C.4 The aircraft operator documents procedures to report obstacles which are not mapped or registered in the appropriate database.

Guidance documents

- Energy Institute G+ "Good practice guidelines for safe helicopter operations in support of the global offshore wind industry" Sections A and B
- HeliOffshore RP Practise for Wind Farm Operations (WinRep)

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.

4C.4 The policy provides guidance on recognizing the signs of substance abuse and procedures to alert management for appropriate action to prevent staff from operating if necessary, including a method of confidential reporting.

Guidance documents

- BARSOHO Implementation Guidelines v4 1.6
- HeliOffshore Safety Performance Model – Common enabler – Standards and oversight

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 standardization.

5C.2 The automation procedures are defined for all phases of flight. The automation procedures define flight conditions when the use of automation is mandatory.

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

5C.4 The automation procedures detail methods to maintain flight proficiency in manual control, including those conditions under which automation systems are deselected and manual flight undertaken.

5C.5 The Minimum Equipment List (MEL) has clear requirements for the Automatic Flight Control System (AFCS) to be serviceable for night or Instrument Flight Rules (IFR) flights.

5C.6 The pilot flying guards the flight controls at all times when not carrying out other essential tasks, when the aircraft is in a coupled autopilot mode.

5C.7 For equipment details, see 690-5 – Helicopter and equipment, Section 4.

Guidance documents

- BARSOHO Implementation Guidelines - Effective use of Automation
- HeliOffshore Flightpath Management Recommended Practices (latest version of HO-FPM-RP)
- HeliOffshore Safety Performance Model – Accident events – Aircraft upset

FLIGHT OPERATIONS

6. Helicopter terrain awareness warning systems

6A. Purpose

Preventing Controlled Flight into Terrain (CFIT) accidents.

6B. Expectations

The Aircraft Operator has documented procedures for the use of Helicopter Terrain Awareness Warning Systems (HTAWS).

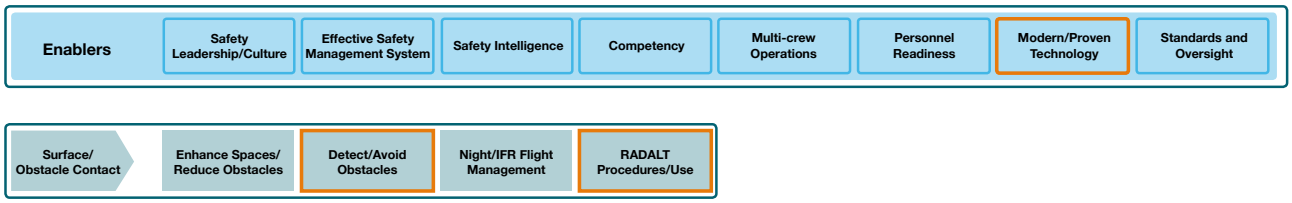
6C. Processes and practices

6C.1 Flight crew Standard Operating Procedures (SOPs) and training includes the response to HTAWS alerts.

6C.2 For equipment details, see 690-5 – Helicopter and equipment, Section 7.

Guidance documents

- BARSOHO Implementation Guidelines - Effective use of Automation
- HeliOffshore Safety Performance Model – Accident events – Surface/Obstacle Contact



FLIGHT OPERATIONS

7. Airborne collision avoidance systems

7A. Purpose

Preventing mid-air collisions

7B. Expectations

The Aircraft Operator has documented procedures for the use of Airborne Collision Avoidance Systems (ACAS).

7C. Processes and practices

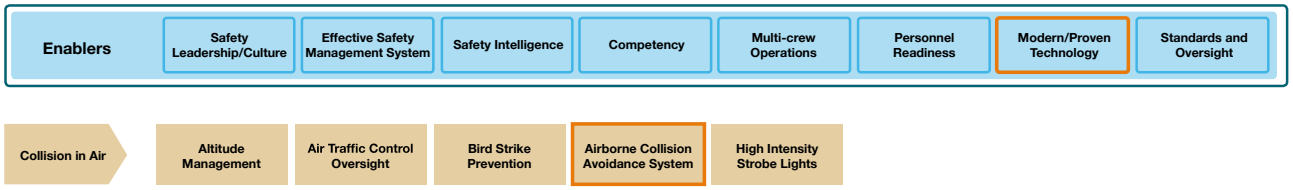
7C.1 Clear instructions and procedural guidance in the use of the ACAS for crews is documented.

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

7C.3 For equipment details see 690-5 – Helicopter and equipment, Section 8.

Guidance documents

- BARSOHO Implementation Guidelines - Collision in the Air
- HeliOffshore Safety Performance Model



FLIGHT OPERATIONS

8. Helicopter flight data monitoring

8A. Purpose

Using 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 An HFDM programme is established, documented, and aligned with appropriate industry standards such as UK CAA CAP 739 FDM, FAA AC 120-82 Flight Operational Quality Assurance and/or HeliOffshore HFDM Recommended Practices (latest version of HO-HFDM-RP), which is based upon a 'Just Culture'.

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 SOPs:

- 8C.4.1 Data is analysed for threshold exceedance events daily (operational flight days) through either aircraft 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.4.8 With regards to event criteria and analysis, the aircraft operator differentiates:
  - 8C.4.8.1 Phase of flight.
  - 8C.4.8.2 Training vs Maintenance Flights vs Regular Public (Commercial Air) Transport.

FLIGHT OPERATIONS

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

8C.6 The following Key Performance Indicators (KPIs) are established and tracked as a minimum:

- 8C.6.1 Data capture rate is minimum 95%
- 8C.6.2 Flight data to be available for analysis within 24 hours (working day)
- 8C.6.3 Initial analysis to be completed within 72 hours (working day)
- 8C.6.4 Identified crew contact to be completed within 7 working days
- 8C.6.5 100% crew contact for all 'medium' and 'high' risk events

8C.7 A HFDM review group meets at least quarterly to:

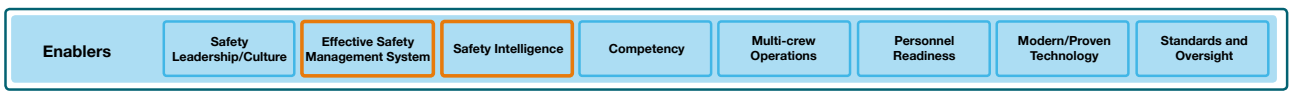
- 8C.7.1 Validate the reports, including a periodical review of de-identified HFDM data findings.
- 8C.7.2 Investigate significant events identified by the HFDM Programme.
- 8C.7.3 Reviews KPIs and trends.
- 8C.7.4 Make recommendations for suggested changes to operational procedures or the training syllabus and tracks their implementation.
- 8C.7.5 Periodically determine the effectiveness of thresholds.
- 8C.7.6 Meetings are minuted and actions are tracked to closure.
- 8C.7.7 An overview of all HFDM actions, together with the KPI's are discussed in the periodic Senior Management Reviews.

8C.8 Allow the Company the right to audit the HFDM programme, within the limitations of the operator's confidentiality agreement, to assure that it is effective. Such an audit does not require access to raw or identifiable data.

8C.9 For equipment details see 690-5 – Helicopter and equipment, Section 9.

Guidance documents

- ICAO Annex 6
- ICAO Doc 10000
- UK CAA CAP 739 FDM
- FAA AC 120-82 Flight Operational Quality Assurance
- HeliOffshore HFDM Recommended Practices
- BARSOHO Implementation Guidelines v4 1.2
- HeliOffshore Safety Performance Model



FLIGHT OPERATIONS

9. Helicopter performance class[2]

9A. Purpose

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

9B. Expectations

All offshore CAT operations are carried out in the appropriate performance class.

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.

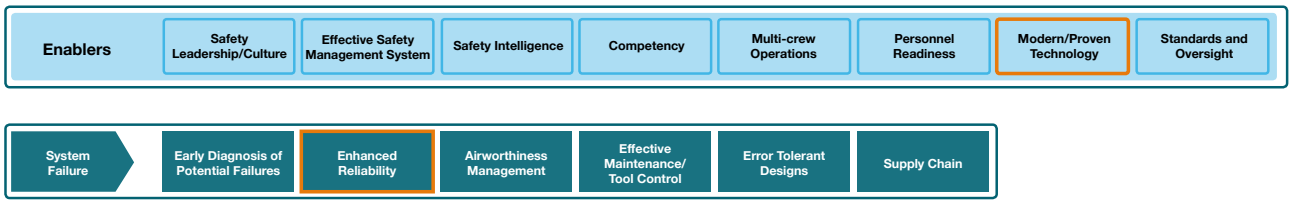
9C.2 The Rotorcraft Flight Manual (RFM) PC1/PC2E/PC2DLE/PC2 flight profiles are used onshore as appropriate.

9C.3 When pre-flight 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.4 The RFM PC2E/PC2DLE[3] flight profiles are used offshore, as appropriate.[4]

Guidance documents

- ICAO Annex 6
- ICAO Helicopter Code of Performance Development Manual (Doc 10110)
- CASA Advisory Circular 133-02 v1.1. Performance Class 2 With Exposure Operations
- HeliOffshore Safety Performance Model – Accident events – System Failure



[2] For definitions of performance classes, see Definitions in RP69x, and for basic certification requirements, see 690-5 Helicopter and Equipment, Section 2, Certification Standards.
[3] For PC2DLE with no exposure to deck edge strike or forced ditching, the exposure period is set at 0 seconds.
[4] 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).

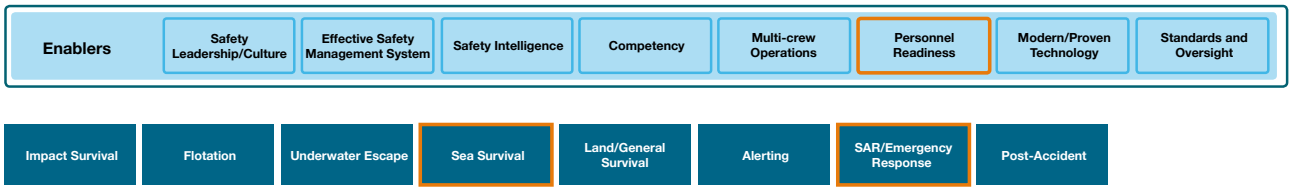
- 10C.1.1 PLBs have 121.5MHz, GPS and 406MHz capability
- 10C.1.2 Advanced Automatic Identification System (AIS) is desirable
- 10C.1.3 PLBs are assessed for compatibility with the aircraft Emergency Locator Transmitter (ELT)

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 NAA approved Technical Standard Order (TSO) and which have been tested for compatibility with the lifejacket.

Guidance documents

- BARSOHO Implementation Guidelines v4 20.4 – Sea Survival
- ETSO-2C519, CA-EBS
- ETSO-2C520.PLB
- HeliOffshore Safety Performance Model – Accident survival goals – Sea Survival



FLIGHT CREW

11. Flight crew - experience and qualification

11A. Purpose

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

11B. Expectations

The operator demonstrates flight crew meet the required experience and qualification levels by entering at the appropriate stage in the process.

11C. Processes and practices

11C.1 The operator demonstrates recruitment is based on detailed psychometric and pilot aptitude testing, to include evaluation of language skills, cognitive abilities, hand-eye coordination, ability to apply theory, and team coordination, etc.

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

- 11C.2.1 There is a formal competency-based progression scheme for pilots from basic (ab initio/new hire/conversion) to command and for aircraft type conversion based on the specifications in this section and the pilot aircraft conversion syllabus in 690-2, Section 45 - Introduction of new aircraft type.
- 11C.2.2 The content of the training syllabus, including comprehensive ground and flight training, is based on regulatory training schemes.
- 11C.2.3 If required, the operator has a documented night flying syllabus to train flight crew and trainers Line Training Captain (LTC), Type Rating Instructors (TRI) and Type Rating Examiner (TRE) to offshore night competence.
- 11C.2.4 There is a structured command course, including 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 All flight crew training staff have defined role competencies.
- 11C.2.7 Training records are maintained and available that demonstrate the competence checking processes and levels of competence achieved.
- 11C.2.8 There is documented evidence to support at which stage the pilot has entered Table 11-1.

FLIGHT CREW

Table 11-1: Progression-based programme

Stage	Entry level in license, flight hours or other experience	Subject	Content
1	Ab-Initio Entry	CPL(H) training at approved flight training organization (FTO) *(See Note 1)*	Air Transport Pilot Licence (Helicopter) (ATPL(H)) theory required for operations on multi-pilot helicopters
2	CPL(H) Entry More than 150 hours	IR(H) training at approved FTO	IR(H) Course completed successfully
3	CPL(H) with IR(H) More than 185 hours	Operator initial training programme	Multi Pilot Type Rating Course Multi-crew Co-operation Course (See Note 2) Type IR Course Licence Skill test including IR(H)
4	CPL(H) with IR(H) and Type rated on contracted type More than 212 hours	Operator conversion course	Operator Conversion Course on flight simulator, and, if required, on aircraft Operator Proficiency Check (OPC) Course on flight simulator, and, if required, on aircraft
5		Line Training Ground Course	Performance Class requirements Flight planning Simulator line flight, Line Oriented Flight Training (LOFT) (Not required if covered under stage 4 item OPC)
6		Non-passenger carrying, actual offshore deck landing training by day with TRI/TRE on aircraft type	Minimum 5 daytime approaches, landings and subsequent take-offs to and from an offshore facility Competence check by TRI/TRE for release to Line Training *(See Note 6)*
6-night		If night offshore is required, non-passenger carrying actual, offshore deck landing training by night with TRI/TRE on aircraft type	Ground course night flying offshore Minimum 5 night time approaches, landings and subsequent take-offs to and from an offshore facility (if possible different facilities should be visited) Competence check by TRI/TRE for release to night Line Training *(See Note 6)*
7		Line flying under supervision of a LTC or TRI	Minimum 10 hours and 10 offshore landings by day Progress report required for all flights *(See Note 6)*
7-night		If night offshore is required, line flying under supervision of a LTC or TRI	Minimum 10 hours and 10 offshore landings by night Progress report required for all flights *(See Note 6)*
8		Line check as co-pilot by different LTC	Includes at least two offshore landings and take-offs Line-check to be completed in the Pilot Monitoring (PM) and in the Pilot Flying (PF) role. If required, also in both seats *(See Note 6)*

FLIGHT CREW

Stage	Entry level in license, flight hours or other experience	Subject	Content
9		Progressive monitoring online as First Officer (FO) until 500 hours on type	Two qualifying flight reports per month with a training captain or LTC; Recurrent training and OPC/LPC checks 6-monthly progress reviews of pilots in this phase by chief pilot with all involved training staff Written records of above elements Rostered with experienced Pilot in Command (PIC) only, can be released to any PIC when has 500 hours on type
10	Experienced co-pilot hire enters here, has more than 500 hours Multi-Engine (ME) multi-crew helicopter		Needs to complete the following: • If not rated on type, stage 3 to 8 • If rated on type, stages 4, 5, 7 and 8
11			6-monthly progress reviews of all co-pilots by chief pilot with all involved training staff
12	Entered the program at stage 1, 2, 3, 4 or 10; And • Min 4-year offshore experience (note 5): AND • 1500 hrs ME multi-crew (note 4); AND • 1000 hrs ME Pilot-in-Command Under Supervision (PICUS) (note 4); AND • 100 hrs of night flight as pilot-in command or as co-pilot (note 7)	Operator Command Course	Minimum requirements – ATPL(H) Technical exam FFS Training and Assessment CRM assessment Command Line Training Command proficiency check in simulator as PM and PF Command Line Check by different LTC
12-night	A minimum of 25 hours of night offshore time (see note 3)	If night offshore is required	Command course includes night flying theory FFS training and assessments under simulated night conditions Night command line training Command proficiency check in simulator as PM and PF under night conditions Minimum 25 flight hours offshore night Command Line Check at night by different LTC. *(See Note 6)*
13	Experienced captain hire enters here meets: • All requirements stage 12 • In excess of 500 hours offshore command (see note 3)		Needs to complete from above: • If not rated on type, stage 3 to 7 and 12 • If rated on type, stage 4, 5 and 12

FLIGHT CREW

Stage	Entry level in license, flight hours or other experience	Subject	Content

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. Offshore flight time/hours/experience means flight hours acting as PIC or SIC (including PICUS) as follows:
   a. Providing passenger transportation services over open water
   b. Helicopter hoist operations for sea pilot transfer services and wind farms offshore
   c. Offshore SAR
4. The 1500 hours ME multi-crew and the 1000 hours PICUS is reduced by 500 hours each, provided the candidate can provide evidence of 1000 hours offshore PIC.
5. For specific individuals with different prior experience, the 4 years offshore experience can be lowered to a minimum of two years offshore experience of which one full year in the specific region (all seasons) if the operator contacts the Company Aviation Advisor to agree the equivalent entry requirements based on previous experience (e.g., military, naval experience, ME multi-crew experience, or other acceptable relevant experience).
6. Records are maintained that reflect the results of each training session and include the standards to which the pilot was able to complete the exercise or flight requirement.
7. Deviation of the 100 hours night flying is approved if the NAA requirement for issue of an ATPL(H) license is less, but a minimum of 50 hours is required.

Guidance documents

- ICAO Annex 1 Personnel licensing
- BARSOHO Implementation Guidelines
- HeliOffshore Safety Performance Model – Common enabler – Competency

FLIGHT CREW

12. Flight crew experience - pilot in command under supervision 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

That co-pilots are permitted to log PICUS time to meet the requirements of command time in Table 11.1

12C. Processes and practices

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

12C.2 The logged time as PICUS meets the requirements of section 11, provided:

12C.2.1 The pilot has logged at least 500 hours ME multi-crew offshore.

12C.2.2 The aircraft operator has control and supervision over the programme.

12C.2.3 The flight time is recorded in the pilot's training records.

Guidance documents

- 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 NAA and/or company policy determines the frequency of medical examinations.

Guidance documents

- ICAO Annex 1 Chapter 6
- HeliOffshore Safety Performance Model

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 uses subcontracted pilots subject to certain conditions.

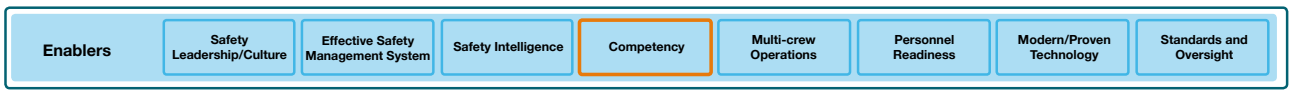
14C. Processes and practices

14C.1 Subcontracted pilot complies with all training, checking and recency requirements of the aircraft operator.

14C.2 Subcontracted pilots inform the aircraft operator of all their flight and duty times.

Guidance documents

- BARSOHO Implementation Guidelines.
- 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 flying more than one type are subject to certain conditions.

15C. Processes and practices

15C.1 The aircraft operator has a written policy on the number of aircraft types pilots may fly in one day, 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 the pilot is permitted to fly Commercial Air Transport (CAT).

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

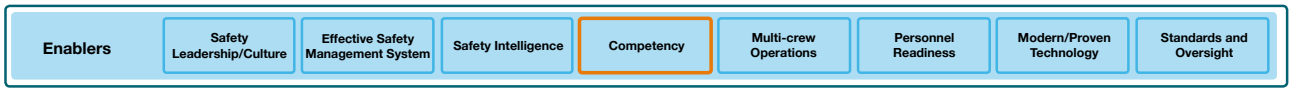
15C.4 The aircraft operator does not schedule pilots for operation on more than one type during the same duty period.

15C.5 Pilots operate a second type only as a result of on-the-day operational changes, such as unserviceability, and when the following have been complied with:

- 15C.5.1 The recency and competence qualification requirements on either type are met.
- 15C.5.2 The time between the types or variant is a minimum of 1-hour block time.
- 15C.5.3 Before operating a second type, the crew briefs the pertinent differences of fuel planning, performance, and weather minima.
- 15C.5.4 Any additional actions required by the "flying more than one aircraft type" risk assessments are met.

Guidance documents

- 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, and the 'pilot flying' and 'pilot monitoring' roles and tasks are defined.

Guidance documents

- ICAO Annex 6
- HeliOffshore Safety Performance Model

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 are in place for particularly demanding flights, such as multiple short offshore shuttle flights between platforms, or for operations in local extreme 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

Guidance documents

- ICAO Annex 6
- ICAO Doc 9966
- 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 Flight Duty Period (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, unless the operator has an active and Company-accepted Fatigue Risk Management System (FRMS) which includes a means to proactively monitor fatigue risk. For operators that have an accepted FRMS, the rest period is not less than 10 hours.

18C.5 An extension to the FDP is permitted on condition that the aircraft operator has a FRMS .

18C.6 Rostering takes account of local traditions and/or religious practices that impact flight crew's ability to meet normal Flight Duty Time (FDT) limitations.

Guidance documents

- ICAO Doc 9966
- ICAO Annex 6
- ICAO Fatigue Risk Management System (FRMS) Implementation guide for aircraft operators
- HeliOffshore Safety Performance Model

19. Flight crew fatigue management - rest for rotating crews

19A. Purpose

Ensuring the flight crew are suitably 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 10 hour rest period is met.

19C.2 Workload, roster schedules, and start times are considered to increase the minimum required rest period. Appropriate rest periods are established for all operations with guidance from the NAA and/or the Company's Aviation Advisor.

Guidance documents

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

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, are 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.

Guidance documents

- ICAO Annex 6
- 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 All CAT flights are conducted under IFR, unless Visual Flight Rules (VFR) is a safer option, or when IFR flight is not possible. VFR flights are carried out using multi-crew coordination procedures for the whole flight.

21C.2 IFR operations comply with local regulatory IFR weather minima unless more stringent Company requirements are issued.

21C.3 Onshore VFR operations comply with the local regulatory VFR operating minima but not below the minima in Table 21.1, Onshore VFR minima.

Table 21-1: Onshore VFR minima

	Minimum operating height (Feet)	Cloud Base (Feet)	Visibility (Meters)	Specific Requirements
Day	500	600	3000 (See note 1)	ICAO Minima
Night	1000	1500 (with 100 feet of vertical cloud clearance)	5000 (See note 1)	

Notes:
1. Minimum visibility is reduced to 1500m subject to NAA approval

21C.4 VFR/VMC on top operations are prohibited.

AVIATION WEATHER

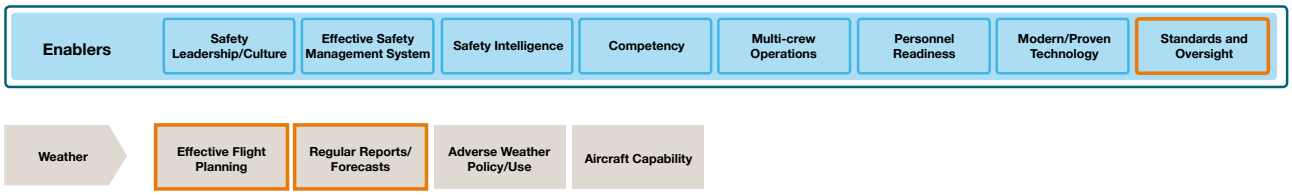
Table 21-2: Offshore VFR minima

	Minimum operating height (Feet)	Cloud Base (Feet)	Visibility (Meters)	Specific Requirements
Day	500	600	5000 (See note 1)	ICAO Minima
	300	400	2000	Offshore inter-field use only if destination or intermediate structure is continuously visible
Night	500	600	5000	Offshore inter-field use only if destination or intermediate structure is continuously visible

Notes:
1. Minimum visibility may be reduced to 1500 m subject to NAA approval.

Guidance documents

- ICAO Annex 6
- 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 to be restricted or temporarily halted and supported by appropriate procedures. The policy also contains instructions for en-route monitoring.

22C.3 For offshore helicopters, these situations include, but are not restricted to:

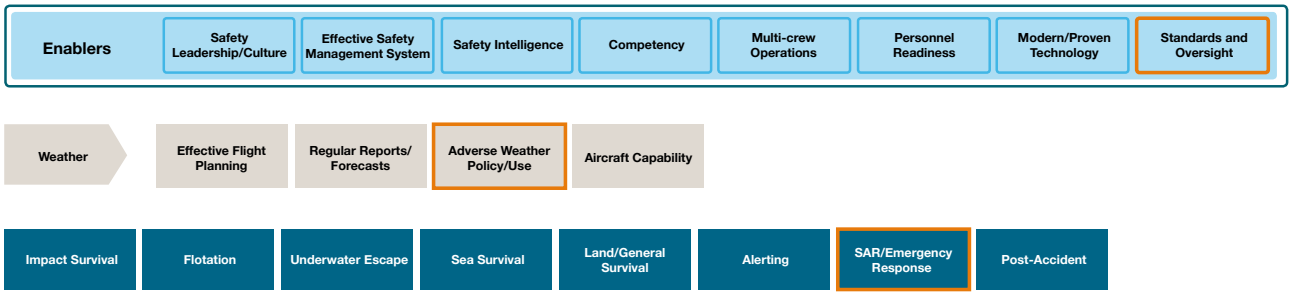
- 22C.3.1 Excessive wind over helidecks prohibiting personnel movement to and from the helicopter
- 22C.3.2 Adverse sea conditions resulting in an unacceptable risk of immediate capsizing, or preventing effective offshore search and rescue
- 22C.3.3 Significant Wave Height (SWH) over the ditching certified capability of the helicopter, see 690-5 – Helicopter and equipment, Section 17 C.2.
- 22C.3.4 Thunderstorms including lightning
- 22C.3.5 Hail
- 22C.3.6 Freezing rain
- 22C.3.7 Helicopter-triggered lightning
- 22C.3.8 Volcanic ash
- 22C.3.9 Low visibility

22C.4 The adverse weather policy considers the aircraft type and survival equipment in use, (see 690-5), the available Search and Rescue (SAR) capability and applicable Emergency Response Plans (ERP) (see 690-1 - *Safety Management Systems*, Section 5) and is revised when material changes to these considerations occur.

AVIATION WEATHER

Guidance documents

- ICAO Annex 6
- UK CAA CAP 641 Review of Helicopter Offshore Safety and Survival
- HeliOffshore Safety Performance Model



FLIGHT OPERATIONS – HELIDECKS

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.

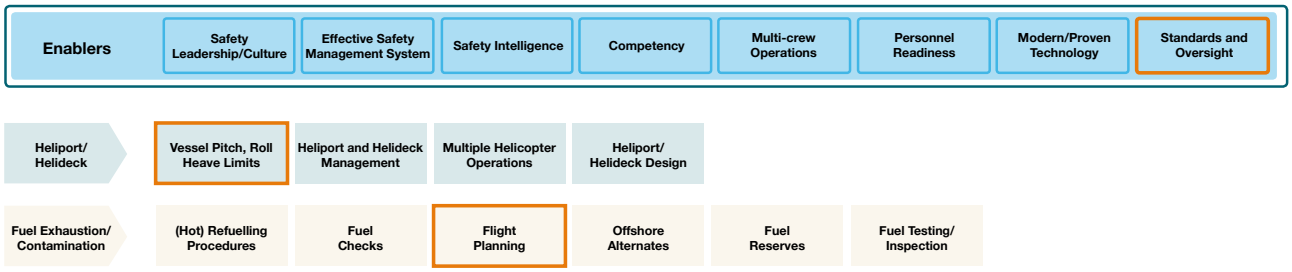
23C. Processes and practices

23C.1 Unless approved to operate to other NAA limits, the limits in the Helideck Certification Agency's (HCA) Helideck Limitations List (HLL) Part C, or the aircraft operator's OM (whichever are more stringent) are used.

23C.2 These limits are only applicable for landing, not for take-off.

Guidance documents

- UK CAA CAP 437
- Helicopter Safety Advisory Committee (HSAC) Recommended Practices 163
- 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 uses 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.

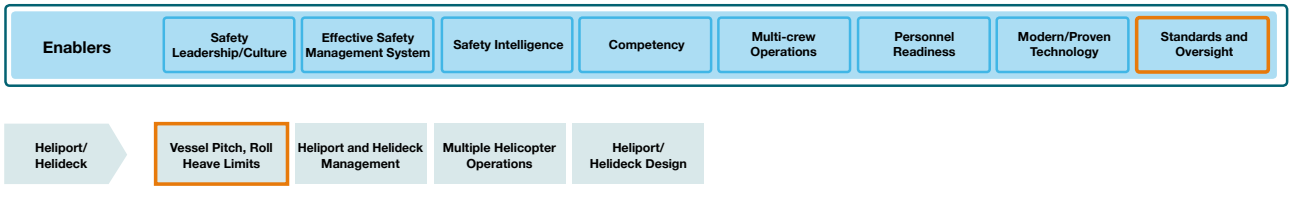
24C.2 The helideck motion and wind information is available to and used by pilots for pre-flight planning and updated information is passed to the crew before landing, and at any time there is a significant change in conditions (see 690-2, Section 25 – Helidecks - significant changes in helideck conditions).

24C.3 The flight crew verifies that the reported helideck motion is within limits detailed in the Air Operator's Operations Manual or the HCA - Helideck Limitations List Part C, whichever is the more stringent, before landing.

24C.4 When a vessel gives permission 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.

Guidance documents

- UK CAA CAP 437
- HSAC RP 163
- IOGP Report 697 – Helidecks and facilities
- 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 changes 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.

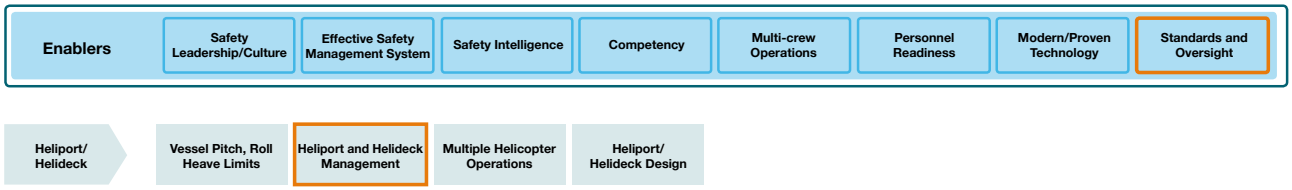
25C. Processes and practices

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 direction of 30° or more.
- 25C.1.5 There is any other abnormal event, e.g., adverse weather conditions.

Guidance documents

- UK CAA CAP 437
- HSAC RP 163
- IOGP Report 697 – Helidecks and facilities
- 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.

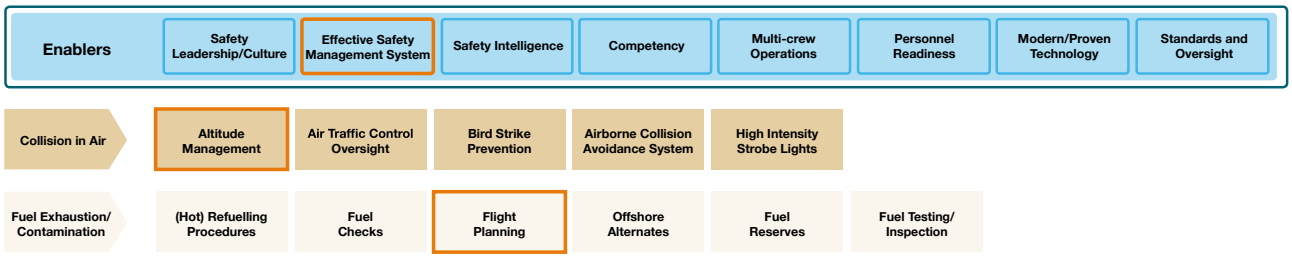
26C. Processes and practices

26C.1 Flight planning procedures take account of:

- 26C.1.1 The configuration and serviceability of the aircraft, including Minimum Equipment List/Minimum Departure Standard (MEL/MDS) items
- 26C.1.2 Weather conditions and performance
- 26C.1.3 Routing, manifest (see 690-3 Support Operations, Section 10), fuel requirements, and weight and balance
- 26C.1.4 Destination(s) and alternates
- 26C.1.5 Preparation of an Operational Flight Plan (OFP)[5]

Guidance documents

- UK CAA 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



[4] Aircraft operators use different formats, for OFPs which may contain the following information:
aircraft registration; aircraft type and variant; date of flight; flight identification; names of flight crew members; duty assignment of flight crew members; place of departure; place of arrival; type of operation (ETOPS, VFR, Ferry flight, etc.); route and route segments with checkpoints/waypoints, distances and tracks; planned cruising speed and expected wind components with estimated flying times between check-points/waypoints; safe altitudes and minimum levels; planned altitudes and flight levels; fuel calculations and estimated fuel remaining at each checkpoint/waypoint; alternate(s) for destination and, where applicable, take-off and en-route, including information on fuel burn, routes and safety altitudes

Items which are readily available in other documentation or from another acceptable source or are irrelevant to the type of operation may be omitted from the OFP.

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 Helicopter fuel planning for an IFR flight includes:

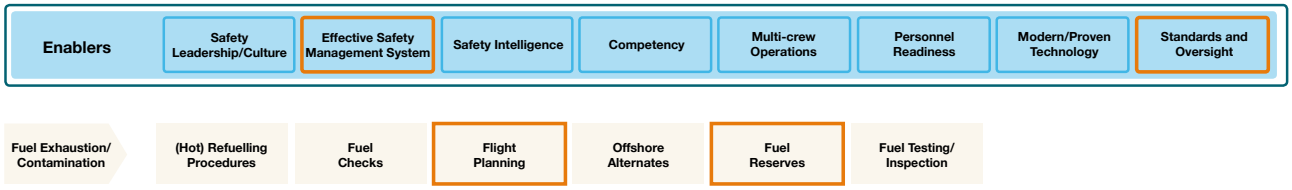
- 27C.1.1 Fuel used during start-up and taxi
- 27C.1.2 Fuel required for the route to the first point of intended landing
- 27C.1.3 Fuel required for ground running on helideck or helipad
- 27C.1.4 Fuel required for the route to onshore alternate heliport or offshore helideck
- 27C.1.5 Contingency fuel as defined by the NAA, plus 30 minutes final reserve

27C.2 Helicopter fuel planning for Visual Flight Rules (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

Guidance documents

- ICAO Annex 6
- HeliOffshore Safety Performance Model



FLIGHT PLANNING

28. Offshore alternates - Planning

28A. Purpose

Ensuring offshore alternates are only used when One Engine Inoperative (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 OM 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 In Ground Effect (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 Out of Ground Effect (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, does 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 has guaranteed the availability of the deck (no other planned helicopter operations, a clear deck, and no crane operations) before the flight is 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 are 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 Automatic Weather Observing System (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.

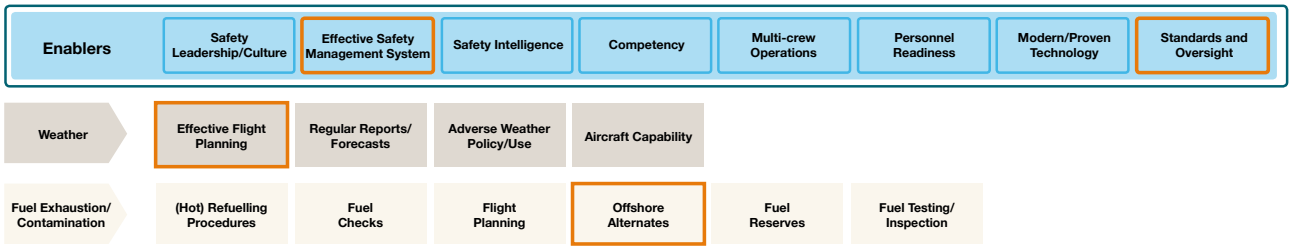
28C.1.8 Any spare payload capacity is used to carry additional fuel, if it would facilitate the use of an onshore alternate.

28C.1.9 The installation selected as suitable for nomination as an offshore alternate has 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.

Guidance documents

- ICAO Annex 6
- 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.

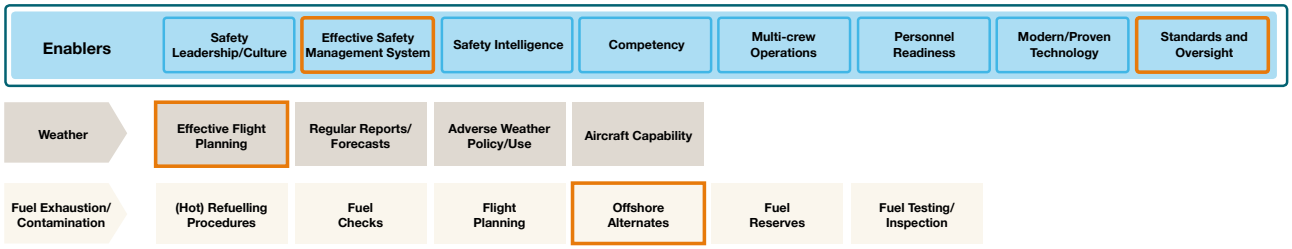
29C.1.3 The landing forecast at the destination and offshore alternate has been obtained and confirmed to be above the required minima as listed in Table 28.1.

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).

Guidance documents

- ICAO Annex 6
- 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 (SOPs or OMs) are used by the flight crew in the performance of their duties. The flight procedures are developed in accordance with the RFM and references the FCOM when available.

30C.2 The flight procedures (SOPs or Operation Manuals) are documented concisely for all phases of flight (planning, pre-flight, in-flight and post-flight) and include appropriate Crew Resource Management (CRM) and Threat & Error Management (TEM).

30C.3 The documented flight procedures include specifically:

- 30C.3.1 Clear and detailed PF/PM task assignments, so that flight crew recognize and act on deviations from standards in a timely manner
- 30C.3.2 Identification of threats and errors and the strategies to counteract them, involving all relevant crew
- 30C.3.3 Situational awareness
- 30C.3.4 Identification of critical phases of flight and categorising threat levels for all flight phases with defined mitigations and limitations on crew actions
- 30C.3.5 Use of active monitoring and cross checking
- 30C.3.6 Use of standard flight deck procedural phraseology including 'Standard Call-Outs' for each phase of flight
- 30C.3.7 Application of Sterile Cockpit procedures during critical phases of flight (see 690-2, Section 31, Flight procedures – sterile cockpit)
- 30C.3.8 Use of checklists for all normal, abnormal and emergency procedures and a procedure for interruption of a checklist
- 30C.3.9 Automation policy (see 690-2, Section 5, Automation)
- 30C.3.10 Usage of the OFP (see 690-2, Section 26, Flight planning)
- 30C.3.11 Transfer of control
- 30C.3.12 Crew briefings for planning, pre-flight, departure, approach and post-flight. See 690-2, Section 34, Pre-flight and post-flight procedures

30C.4 LOSA, HFDM and/or Flight Operations Quality Assurance (FOQA) programmes are used to monitor trends regarding these procedures.

FLIGHT PROCEDURES

30C.5 Flight crew are trained in, and make active use of, the following techniques to identify and manage flight risk:

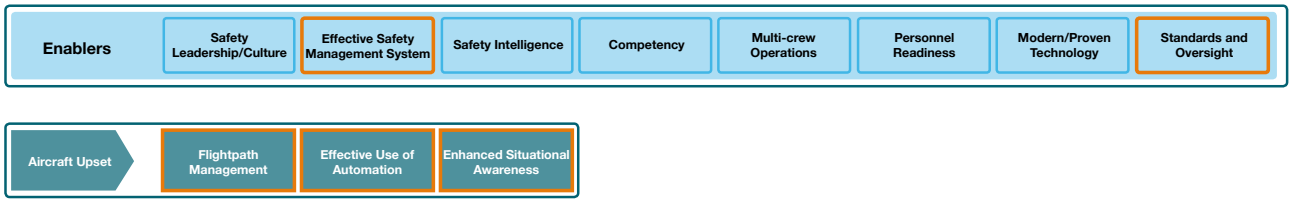
30C.5.1 CRM to develop and maintain efficient use and co-ordination of all flight crew members technical and non-technical skills. Key to good CRM is teamwork, situational awareness, communication, decision making, workload management and problem solving.

30C.5.2 TEM is embedded in all flight procedures, particularly those dealing with critical flight phases in order that threats which may endanger safe operations are recognized and managed. In the same way, the potential for errors by flight crew is recognized and managed.

30C.5.3 Aeronautical Decision Making (ADM) provides a systematic approach to processes used by pilots as they adapt to changing circumstances through the flight.

Guidance documents

- ICAO Annex 6
- FAA AC 120-51E (Crew Resource Management Training)
- 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.

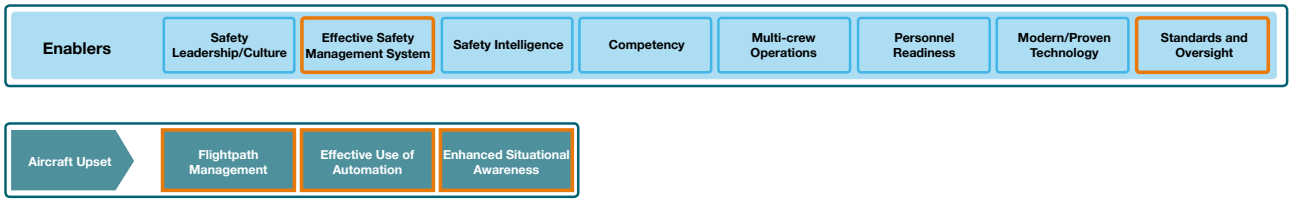
31C. Processes and practices

31C.1 There is a sterile cockpit policy covering, as a minimum, restrictions on unnecessary conversation, restricting activities to essential operational matters during critical phases of flight, use of Electronic Flight Bags (EFBs) or Personal Electronic Devices (PEDS), and paperwork, during flight below key altitudes, and during certain phases of flight or ground operations.

31C.2 The sterile cockpit policy contains Pilot Flying (PF)/Pilot Monitoring (PM) responsibilities.

Guidance documents

- FAA CFR 121.542.
- EASA Part ORO.GEN.110(f).
- Flight Safety Foundation Approach and Landing Accident Reduction Toolkit
- HeliOffshore Safety Performance Model.



FLIGHT PROCEDURES

32. Flight procedures – helicopter stabilized approaches

32A. Purpose

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

32B. Expectations

The Aircraft Operator has established and documented stabilized approach procedures

32C. Processes and practices

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

32C.2 The development of these procedures are based on HeliOffshore Flightpath Management Recommended Procedures.

32C.3 Stabilized approach procedures are specific to the aircraft type or use a Type Certificate Holder-issued FCOM when available.

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

32C.5 Stabilized 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 RFM or FCOM, when available.
- 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 All instrument approaches are flown in accordance with the published instrument procedure. Unique approach procedures or abnormal conditions that require a deviation from stabilized approach criteria require a special briefing.

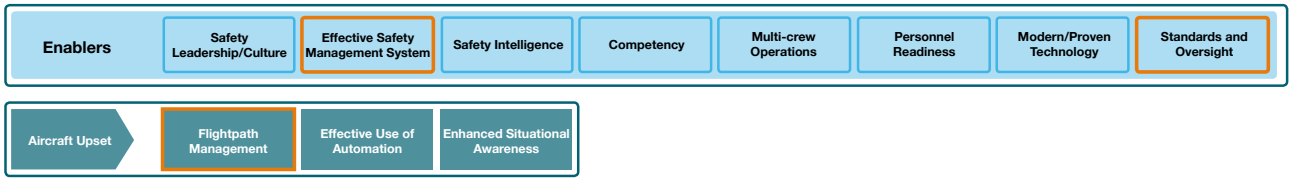
32C.7 Procedures are in place for no-fault, mandatory go-arounds if any approach not be stabilized, and pilots practice all-engine operating (AEO) go-arounds as part of their proficiency training.

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

FLIGHT PROCEDURES

Guidance documents

- ICAO PANS OPS Vol 1 (Flight Procedures)
- ICAO Global Runway Safety Action Plan
- HeliOffshore Flightpath Management Recommended Practices
- 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

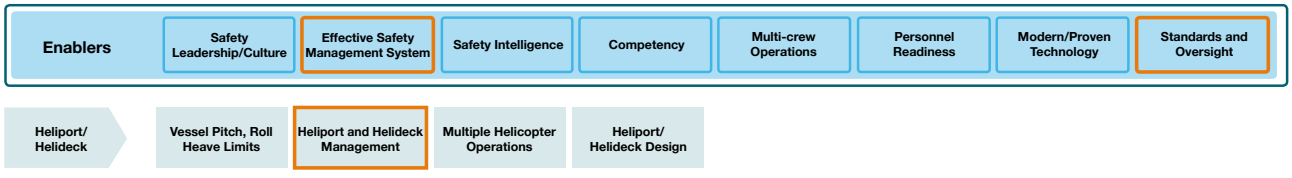
33C.1 There is a process to identify the relative risk (high, medium, or low) of a wrong deck landing at a particular destination or vessel during flight planning. This process considers factors such as the location of mobile installations and vessels, proximity of adjacent decks, physical similarity 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 OM/normal checklists for verification of the destination position and facility name when approaching all vessels and installations.

Guidance documents

- 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 and crew are correctly prepared for flight and any aircraft defects are properly recorded.

34B. Expectations

The Aircraft Operator has established procedures for the identification and management of flight risks and the use of the aircraft technical log and MEL/MDS.

34C. Processes and practices

34C.1 Flight crew pre-flight actions:

- 34C.1.1 Identify relevant flight risks and mitigation strategies by using appropriate TEM techniques
- 34C.1.2 Complete pre-flight planning, including selection of flight altitude, heliports, fuel requirements, aircraft performance, adverse weather avoidance and measures to manage potential bird strike risk
- 34C.1.3 Brief crew responsibilities and tasks
- 34C.1.4 Perform an exterior aircraft inspection prior to each flight, which is conducted by a member of the flight crew

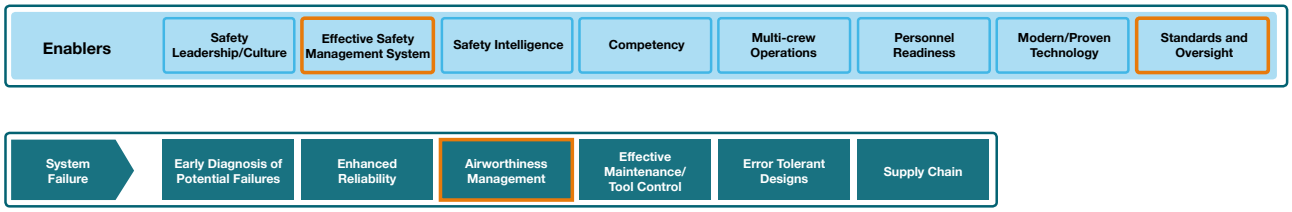
34C.2 Flight crew responsibilities for the use of the MEL/MDS and Aircraft Technical Log (ATL) are clearly defined.

34C.3 The aircraft is prohibited from departure with a defect that has not been processed in accordance with the MEL/MDS/CDL.

34C.4 Post-flight, the flight crew complete a debrief to ensure lessons from the flight are captured and any necessary safety reports are submitted. At a minimum, the debrief covers CRM/Human Factors (HF) performance, compliance with SOPs, recording of any aircraft defects, and debriefing maintenance personnel and operational facilities staff (management and infrastructure).

Guidance documents

- ICAO Annex 6
- 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 Flight following is achieved by Air Traffic Control (ATC) delivered radar, voice or electronic surveillance. A satellite flight following system is installed that records aircraft position when the aircraft is outside an effective 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 The system and processes in place are appropriate to the environment and mission. As a minimum the following is required:

35C.3.1 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.

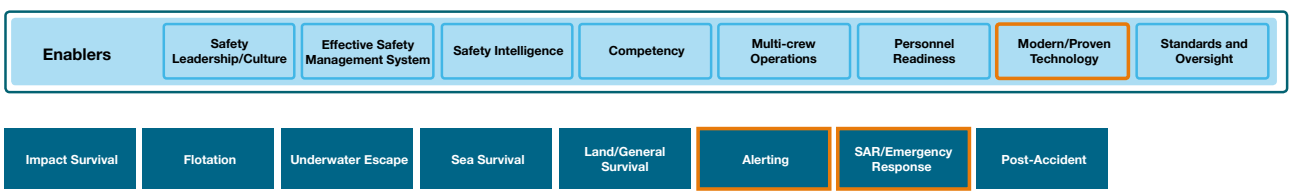
35C.3.2. When the aircraft is not under ATC surveillance, aircraft operator's flight following personnel are able to initiate the Emergency Response Plan if required. There is a reliable means of direct communication available between the aircraft and flight follower throughout the flight. Activation of an ERP occurs in event of distress or loss of communications.

35C.4 The flight following system is not to be unserviceable for more than one day. In the event of unserviceability, the following applies:

35C.4.1 When the aircraft is not under ATC surveillance and the satellite flight following system is inoperative, procedures are in place for regular "ops normal" radio calls at least every 15 minutes. Such calls include heading, speed, position and are recorded in a log.

Guidance documents

- ICAO Global Aeronautical Distress & Safety System (GADSS).
- HeliOffshore Safety Performance Model.



FLIGHT PROCEDURES

36. Specific offshore installation operations

36A. Purpose

Ensuring that helicopter operations are conducted safely during specific offshore installation operations.

36B. Expectations

Proper actions are taken to ensure safe helicopter operations.

36C. Processes and practices

36C.1 During perforation operations:

36C.1.1 Helicopter operations are prohibited.

36C.1.2 The aircraft operator respects the 500m safety zone and radio silence when perforating operations are in progress.

36C.2 During cold flaring operations:

36C.2.1 Transiting traffic is advised to avoid overflying the installation by either 3 nm laterally or 2000 feet vertically.

36C.2.2 Operations are permitted to offshore installations which are cold flaring provided an arc downwind of the flare boom ±30° can be avoided at all times to ensure the helicopter remains clear of the unlit plume. If the wind speed is equal to or greater than five knots, consider suspending operations. If separation from the plume cannot be guaranteed at all times, operations are not permitted.

Guidance documents

- HeliOffshore Safety Performance Model.

FLIGHT PROCEDURES

37. Bird strike avoidance

37A. Purpose

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

37B. Expectations

The Aircraft Operator has established procedures to minimize the risk of bird strikes.

37C. Processes and practices

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

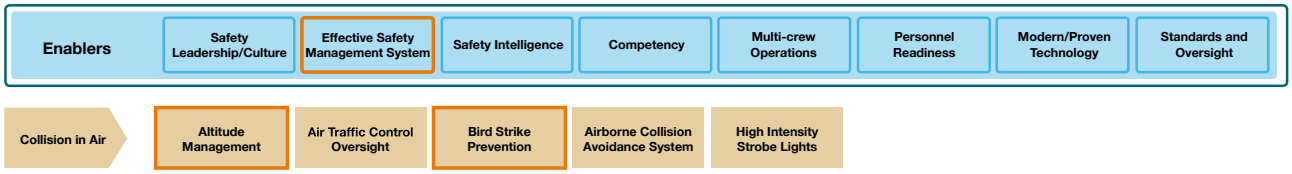
37C.2 In the area where bird strike risk is identified, mitigating actions are implemented by the aircraft operator including documented defined, speed and altitude limits and the use of personal safety equipment, if appropriate.

37C.3 Flight crews are trained in bird avoidance techniques.

37C.4 The aircraft routing and mitigation procedures are tracked in FDM.

Guidance documents

- HSAC-RP 2010-3
- 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.

38C.2 If cargo obstructs any normal or emergency exits, the passenger load is reduced to allow safe egress in the event of an emergency.

38C.3 Cargo carried in the cabin is subject to approval by the Company.

Guidance documents

- ICAO Annex 6
- HeliOffshore Safety Performance Model

FLIGHT CREW TRAINING

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 and competence assessment is maintained, including details of training programmes and the required training frequency.

Guidance documents

- ICAO Annex 6
- HeliOffshore Safety Performance Model

FLIGHT CREW TRAINING

40. Flight crew recency

40A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate competence and recent experience.

40B. Expectations

The Aircraft Operator has a documented type and role programme for recency and absence of flight crew.

40C. Processes and practices

40C.1 Flight crew maintain the recency requirements in Table 40-1

Table 40-1: Flight crew competence and recency requirements

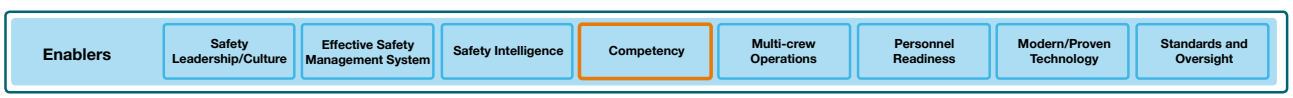
Requirement	Recency
Total hours previous 60 days	15 hours on contracted type (See Notes 1 and 6)
Offshore recency previous 60 days	3 cycles to an offshore helideck (see Notes 2 and 3, 4 and 6)
For night operations, night offshore recency previous 90 days	3 night offshore cycles on the contracted aircraft type or in the simulator of the same type or series being flown (See Notes 3, 4, 5, 6)
For night operations, night offshore recency previous 365 days	3 actual offshore cycles on the contracted aircraft type (see Notes 3, 4 and 6)

Table Notes:

1. If hours are not met, a recency check on the contracted type (a dedicated flight or a normal revenue flight) is conducted by a LTC/TRI. The flight includes at least a sector flying as PM and another sector as PF. Successful completion of a recency check re-establishes recency for 60 days. The Company Aviation Advisor is to be notified each time a recency flight was required.
2. If the day cycles are not met between 60 and 90 days, an offshore recency training flight (which may be a revenue flight) with a current LTC/TRI is made to regain offshore recency. Successful completion of a recency check re-establishes recency for 60 days.
3. If the day and/or night cycles are not met within 90 days (and 365 days for night offshore cycles), a non-passenger carrying line training flight with a current LTC/TRI is made to regain the appropriate offshore recency.
4. One cycle consists of a take-off, approach and landing on the contracted aircraft type.
5. Use of a simulator of the same type or series being flown is acceptable 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 under the typical spread of local weather conditions. The simulator recurrent training sessions are to be supervised by a Simulator Flying instructor (SFI)/TRI/TRE.
6. The recency training flights, or line checks as mentioned in note 1, 2 and 3 above are to determine proficiency for the environment and operations carried out. They are not intended to be conducted routinely at the end of a recency period. In the cases where the recency requirements are regularly missed due to low contracted flight operational hours, a risk assessment with appropriate mitigation is presented to the Company Aviation Advisor.

Guidance documents

- ICAO Annex 6
- 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 recurrent training and checking to the standards of the NAA, including a six-monthly aircraft OPC.

41C.1.1 One of these checks includes an annual instrument rating and licence renewal proficiency check.

41C.1.2 The aircraft operator training program covers all major emergencies of the contracted helicopter type in a 3-year rolling program.

41C.1.3 See 690-2, Section 43, Use of Flight Simulation Training Devices – General, 43C.1, and Section 44, Use of Flight Simulation Training Devices – Devices, item 44C.1

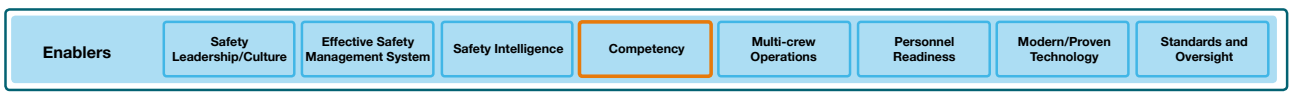
41C.2 Where distinct climatic seasons exist, training is related to seasonal changes.

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

41C.4 The aircraft operator develops a specific training program for complex Maintenance Check Flights (MCF), appropriate for the complexity of the aircraft and the level of the MCF required. If required, the aircraft operator assigns this MCF training program to a specific selection of flight crew and as required, engineers. See 690-4, Engineering, Section 18 – Maintenance Check Flights.

Guidance documents

- ICAO Annex 6
- HeliOffshore Safety Performance Model



FLIGHT CREW TRAINING

42. Rostering flight crew

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 rostering policy for flight crew.

42C. Processes and practices

42C.1 The operator has a rostering policy which covers at least:

- 42C.1.1 Rostering pilots who:
  - 42C.1.1.1 Hold a valid and current license as appropriate
  - 42C.1.1.2 Hold a valid aircraft rating and instrument rating
  - 42C.1.1.3 Meet the customer and operator recency requirements
  - 42C.1.1.4 Hold a valid medical certificate
  - 42C.1.1.5 Are competent for the rostered flight
  - 42C.1.1.6 Are compliant with all FDT and FTL limitations for the scheduled flight
- 42C.1.2 Rostering pilots in a new environment
- 42C.1.3 Not rostering co-pilots with less than 500 hours offshore multi engine and multi-crew with any commander who has less than 100 hours PIC since command appointment on the contracted type.
- 42C.1.4 Avoiding the rostering of pilots continuously together causing possible familiarity complacency on the base.
- 42C.1.5 Pilots have gained sufficient experience and competence before rostering for offshore night operations.
- 42C.1.6 When rostering crews for night operations, the "pairing" of crews avoids a crew having a low total or recent night experience.

Guidance documents

- ICAO Annex 6
- 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 Flight Simulation Training Devices (FSTDs).

43C. Processes and practices

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

43C.1.1 Pilots who operate in either seat are trained and checked in both seats.

43C.2 FSTDs include landing area visual, weather experienced simulations that are representative of those being used by the aircraft operator, including for example, aerodrome and 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.

Guidance documents

- 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 six months.

44C. Processes and practices

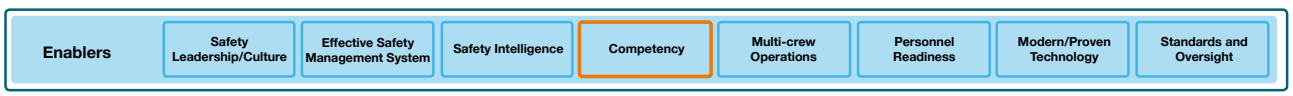
44C.1 Flight crew undergo recurrent training and checking (including OPC/LPC/IR check) in an approved FSTD at a frequency of at least every six months. Level C or Level D FFS (or type -specific Type III, IV or V devices as described in ICAO Doc 9625 Vol 2) are used where available for the type. See 690-2 Aircraft Operations, Section 41, Flight crew training – recurrent training and maintenance check flights, item 41C.1.

44C.2. The FSTD training syllabus incorporates Line Orientated Flight Training (LOFT) scenarios and TEM training, including those emergencies that cannot be practised in the air.

44C.3 Use of a simulator of the same type and series being flown with a lower certification/ specifications mentioned in 44C.1, is used if agreed by the Company, provided the device has the capability of simulating the approach and landing to an offshore helideck. In addition, the specific device to be used is approved for that use by the relevant NAA.

Guidance documents

- ICAO Doc 9625 Vol 2
- HeliOffshore Safety Performance Model



FLIGHT CREW TRAINING

45. Introduction of new aircraft types

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 conversion syllabus when introducing a new aircraft type.

45C. Processes and practices

45C.1 When new types are introduced into service, an introduction into service program is developed in conjunction with the Company.

45C.2 The programme is approved by the NAA and is run either by the OEM or by an approved and licenced Approved Training Organization (ATO); if applicable, it includes time spent in an FSTD.

Guidance documents

- ICAO Annex 6
- HeliOffshore Safety Performance Model

OTHER TRAINING

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 CRM training programme in place for all crew.

46C. Processes and practices

46C.1 CRM concepts are embedded in line operations including checklists, briefings, abnormal and emergency procedures The aircraft operator CRM system, approved by the NAA if required, includes the following components:

- 46C.1.1 Initial classroom-based training
- 46C.1.2 Annual recurrent training, including in-person classroom training and aircraft type training elements
- 46C.1.3 CRM command course training
- 46C.1.4 Periodic assessment and competency

46C.2 The CRM training programme provides the following:

- 46C.2.1 A standard training syllabus for every crew member
- 46C.2.2 An additional training programme tailored specifically to the operator

46C.3 The initial classroom-based training covers, as a minimum, the following topics:

- 46C.3.1 TEM procedures and techniques
- 46C.3.2 Effective communication and coordination, including the effects of cultural differences
- 46C.3.3 Situational awareness, information acquisition, and processing
- 46C.3.4 Pressure and stress
- 46C.3.5 Fatigue and vigilance
- 46C.3.6 Workload management, human performance and limitations
- 46C.3.7 Monitoring, intervention, decision building
- 46C.3.8 Leadership and team building
- 46C.3.9 Automation, philosophy on the use of automation and technology management
- 46C.3.10 Relevant case studies appropriate to the aircraft operator and type of operations
- 46C.3.11 Error avoidance
- 46C.3.12 Threat management
- 46C.3.13 Error management
- 46C.3.14 Undesired aircraft state management

OTHER TRAINING

46C.4 The annual recurrent CRM training covers, as a minimum, the following:

- 46C.4.1 TEM procedures and techniques
- 46C.4.2 In-depth review of a minimum of three core elements as found in 46C.3.2 – 46C3.10 above. On a three-year cycle, all nine topics are covered.
- 46C.4.3 Review and discussion of current safety trends with the Operator's specific operations and industry case studies.
- 46C.4.4 Crew member evacuation drills, including de-briefing.
- 46C.4.5 The recurrent training to be in-person classroom training every third year.

46C.5 The operator develops the above CRM training programme tailored to the size and scope of their operations and pays particular attention to the current state of human factors and technology interface in the operational environment.

46C.6 The CRM is integrated in every stage of training. Whenever practicable, parts of the CRM training are conducted in FSTDs that reproduce a realistic operational environment and permit interaction, this includes LOFT scenarios. The OPC to include a LOFT section during which a complementary CRM assessment is completed in conditions that reproduce a realistic operational environment.

46C.7 The non-technical skills are assessed, if possible.

46C.8 CRM training is reviewed at least every three years for effectiveness based on output from the operator's management system and is adjusted with the regular output/outcome of the FDM and LOSA programme (see 690-1 Safety Management Systems, Section 14, Line Operations Safety Audit).

46C.9 While CRM training can be delivered by different means, some components of training are facilitated using a specific training, e-learning, Computer Based Training (CBT), and self-study; however, these may only be used as a pre-requisite for classroom trainer/facilitation.

46C.10 The operator documents the competence and training requirements of the CRM trainer/facilitator. As a minimum, the CRM trainer/facilitator has:

- 46C.10.1 Adequate knowledge of CRM
- 46C.10.2 Adequate knowledge of Human Performance and Limitations (HPL)
- 46C.10.3 Completed CRM training themselves
- 46C.10.4 Adequate knowledge of the operational environment of the specific operator
- 46C.10.5 Adequate knowledge, skills and credibility required to deliver the CRM training elements in the non-operational environment

46C.11 The CRM trainer/facilitator competence to be assessed every three years through a documented aircraft operator procedure.

OTHER TRAINING

Guidance documents

- 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 dangerous goods are carried in the appropriate aircraft hold locations.

47B. Expectations

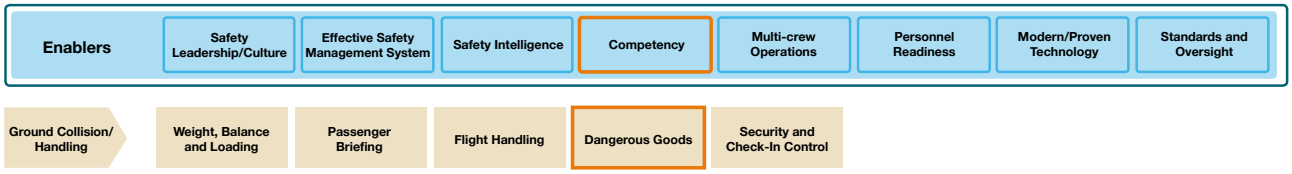
The Aircraft Operator has a dangerous goods training programme in place.

47C. Processes and practices

47C.1 Dangerous goods awareness training, compliant with NAA requirements, is in place for all flight crew, cabin crew, technical crew, and appropriate ground staff as mandated under ICAO/IATA Technical Instructions - at least every two years to ensure that they are aware of the requirements, including relevant legislation, limitations and documentation, for the carriage of hazardous materials.

Guidance documents

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



ROLE SPECIFIC TRAINING

48. Role specific training – Helicopter Underwater Escape Training

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

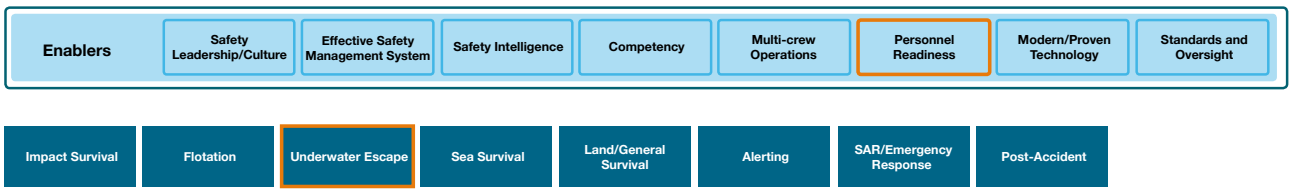
48C.1 Flight crew complete a Helicopter Underwater Escape Training (HUET) course to a recognized standard (e.g., OPITO) that includes the use of a Modular Egress Training Simulator (METS) at least every four years, unless local regulation requires greater frequency.

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.

Guidance documents

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



ROLE SPECIFIC TRAINING

49. Role specific training – compressed air emergency breathing systems

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 Compressed Air Emergency Breathing Systems (CA-EBS).

49C. Processes and practices

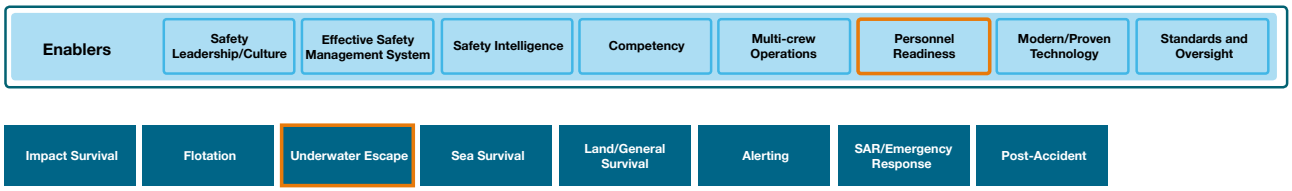
49C.1 HUET includes training in the use of the CA-EBS to develop and maintain user proficiency at least every four years, unless local regulation requires greater frequency.

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.

Guidance documents

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



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, Touch Down/Positioning Markings (TD/PM), D value and t value, Limited Obstacle Sector (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 Obstacle Free Sector (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 flight crew 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.

Guidance documents

- CAP 437
- HeliOffshore Safety Performance Model

ROLE SPECIFIC TRAINING

51. Role specific training – control guarding

51A. Purpose

Preventing injuries following an accidental flight control 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.

51C.2 Require and document that the Pilot Flying (PF) is to physically restrict the flight controls when the other pilot leaves or returns to his seat when the rotors are turning.

51C.3 Require and document that a pilot seat is occupied by a qualified person whenever an Auxiliary Power Unit (APU) is running, unless the Aircraft Flight Manual (AFM) allows for the APU to be run unattended.

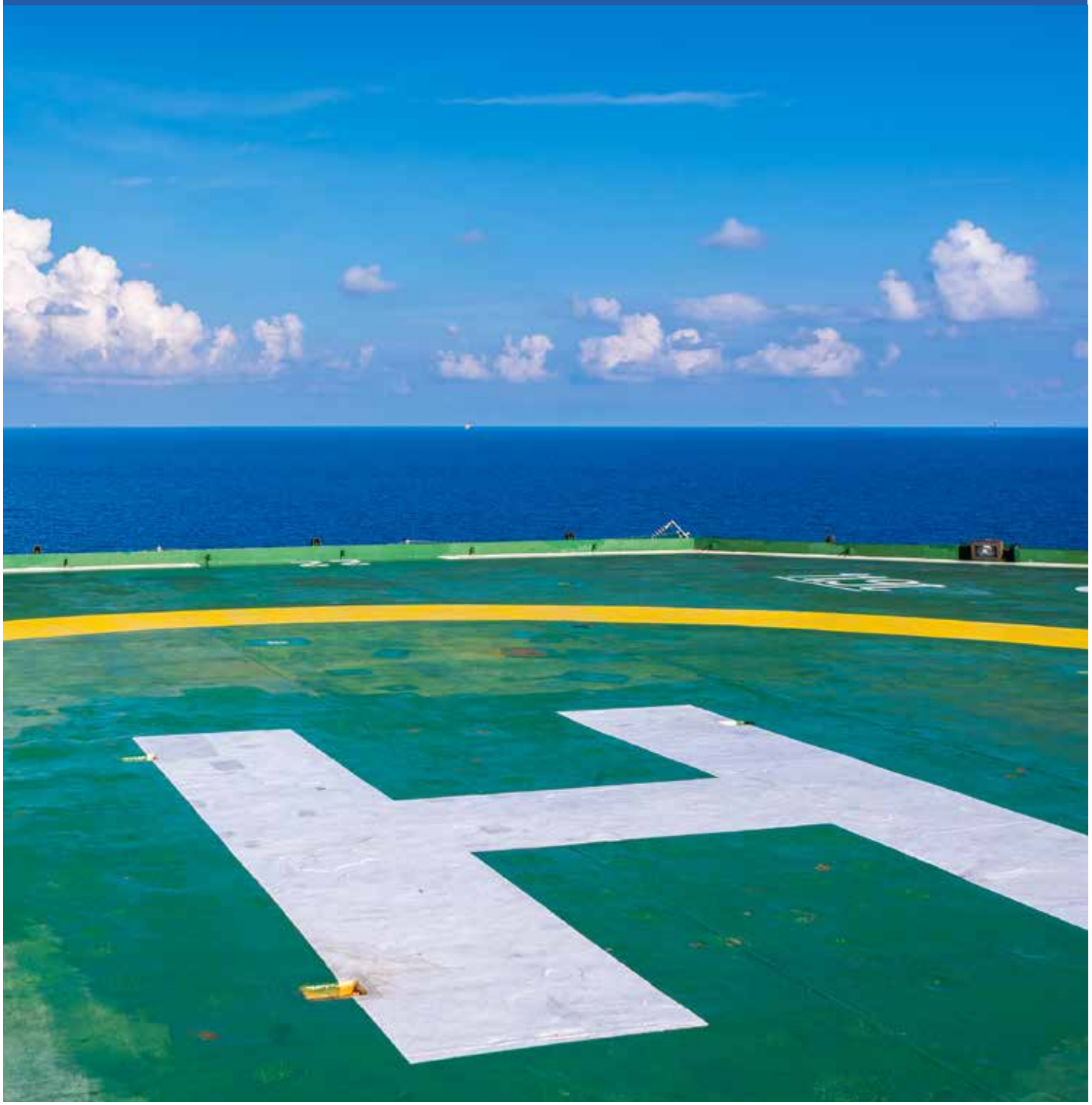
Guidance documents

- 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 that passengers are identified and processed at check-in and are appropriately escorted and seated

1B. Expectations

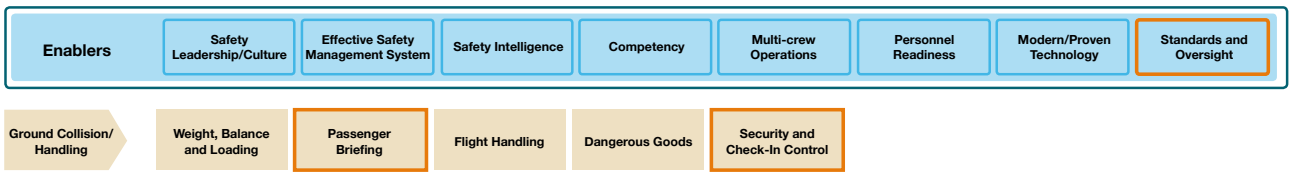
A passenger check-in process is established.

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 requirements where appropriate, medical or other currency requirements, searched for prohibited items (prohibited either in-flight or at the destination) and deny boarding to passengers who are disruptive.

Guidance documents

- ICAO Annex 9 Appendix 2
- UK CAA CAP 437 App K
- HeliOffshore Safety Performance Model



PASSENGER HANDLING

2. Offshore 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 passenger holding area is provided.

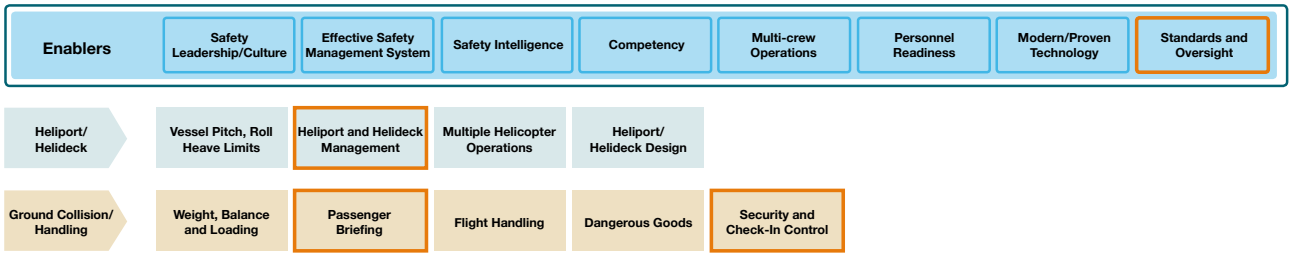
2C. Processes and practices

2C.1 The passenger holding area includes:

- 2C.1.1 A designated area for the passenger and freight check-in process and security checks, i.e., for weighing and registering all outgoing passengers, baggage, and freight on calibrated scales
- 2C.1.2 A dedicated and secure waiting area for outbound passengers that separates them from incoming passengers
- 2C.1.3 A designated area for the display of written and graphic information related to aircraft safety and local procedures
- 2C.1.4 A viewing room for video safety briefings (it is acceptable for this to be the same area as that used for the display of information)
- 2C.1.5 If applicable, a changing room for the donning of immersion suits (it is acceptable for this to be the same area as the video room)
- 2C.1.6 A baggage collection area for incoming passengers
- 2C.1.7 A separated and secure area for holding checked-in baggage
- 2C.1.8 A screened/private passenger search/testing area

Guidance documents

- ICAO Annex 6
- BARS Offshore Helicopter Operations Safety Performance Requirements Implementation Guidelines
- 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.

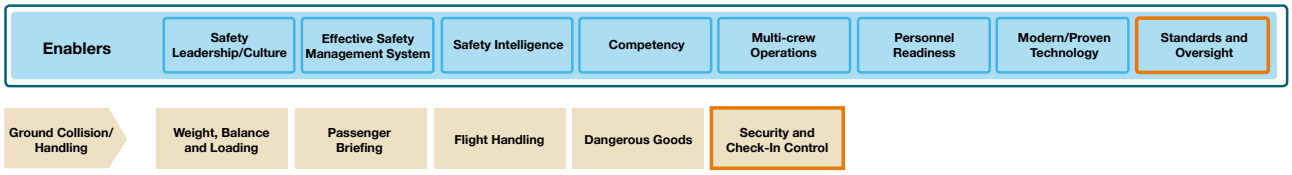
3C. Processes and Practices

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 recognize the signs of substance abuse and alert their management for appropriate action to remove the passenger from the flight

Guidance documents

- ICAO Annex 9 Chapter 6.43, 6.44
- 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 loading of aircraft, within approved limits.

4B. Expectations

For aircraft carrying 19 passengers or fewer passenger and baggage weights are accurate.

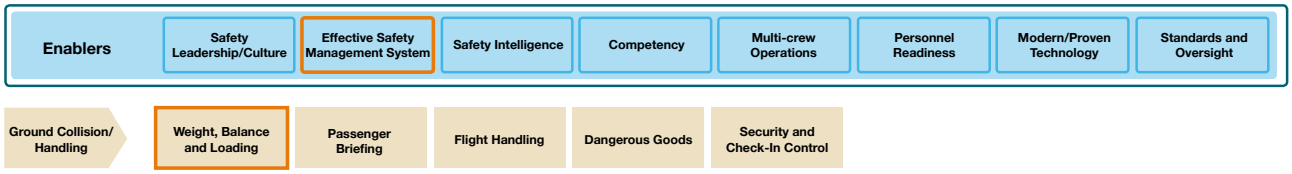
4C. Processes and practices

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

4C.2 Weighing scales are calibrated throughout the full range of measurement, as per manufacturers recommended intervals. If a manufacturer's interval is not specified/ available, the scales are calibrated annually.

Guidance documents

- ICAO Annex 6
- 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.

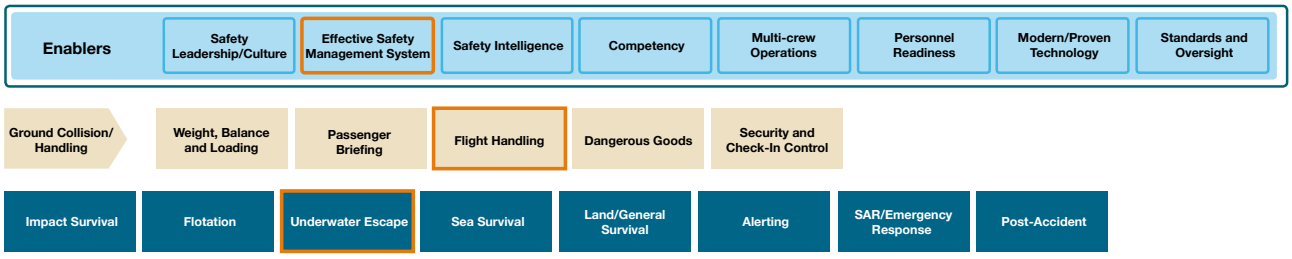
5C.2 A means is in place to identify passengers that are required to be seated next to appropriate exits, as described in the "Step Change for Safety XBR process".

5C.3 Ground handling and helideck staff involved in passenger seat allocation/verification during boarding phase are aware of the XBR process.

5C.4 The use of seat harnesses/seat belt extensions is prohibited, unless certified.

Guidance documents

- 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
- Step Change for Safety XBR process
- 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 121.5 MHz and AIS.

6C.1.2 PLBs are assessed for compatibility with the aircraft Emergency Location Transmitter (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 standard, 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.

Guidance documents

- ETSO 2C502
- ETSO 2C503
- ETSO-2C504
- HeliOffshore Safety Performance Model

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; a briefing by the flight crew is acceptable where necessary.

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.2.1 Passengers are briefed to use push-out windows/emergency exits as detailed in the RFM and relevant OEM documents.

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, including the brace position. The cards use graphics with international symbols, and/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.

PASSENGER HANDLING

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.

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 Emergency Position Radio Indicating Beacon (EPIRBs)) as appropriate to the aircraft type and operation.

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.

7C.6.13 The use of hearing protection.

7C.6.14 Brace position:

7C6.14.1 Occupants in forward-facing seats adopt an erect brace position.

7C6.14.2 Occupants in aft-facing seats adopt an erect brace position with the head placed firmly against the head rest or seat back.

7C6.14.3 In both cases hands either grip the outer immersion suit or the seat. Knees are pressed together, feet slightly apart and heels slightly forward of the seat.

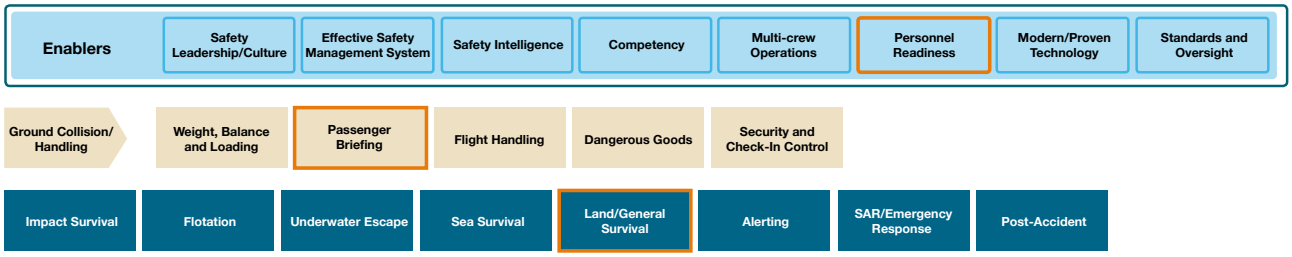
7C.7 Procedures for boarding and exiting the aircraft:

7C.7.1 Passengers do not enter the aircraft operating area or helideck until instructed to do so by Helideck Landing Officer (HLO), Helideck Attendant (HDA), or other designated personnel.

7C.7.2 Passengers are required to remain seated until instructed by the pilot, HLO, HDA, or other designated personnel opens the doors and instructs them to disembark.

Guidance documents

- ICAO Annex 6.
- 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

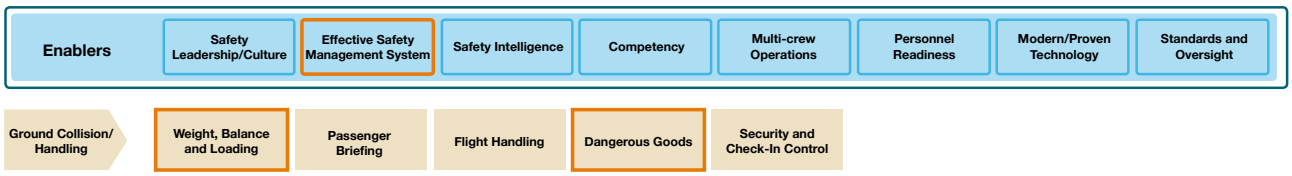
8C.1 Each piece of cargo offered for transport by air is weighed separately and recorded in the manifest.

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 throughout the full range of measurement, as per manufacturers recommended intervals. If a manufacturer's interval is not specified/ available, the scales are calibrated annually.

Guidance documents

- ICAO Annex 6.
- HeliOffshore Safety Performance Model.



PASSENGER HANDLING

9. Cargo – dangerous goods

9A. Purpose

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

9B. Expectations

The aircraft operator has an appropriate DG programme in place.

9C. Processes and practices

9C.1 Where the carriage of DG by the aircraft operator is authorized, procedures comply with the ICAO Technical Instructions or the IATA DG 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 DG are not carried, DG 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 in passengers' baggage and consigned freight.

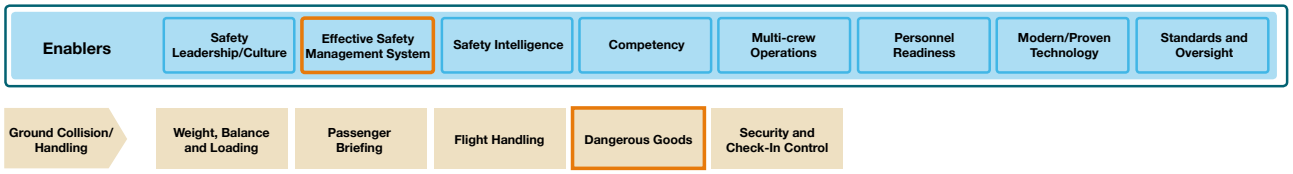
9C.3 Provisions for dangerous goods carried by passengers or crew. Limitations for Portable Electronic Devices (PED), batteries, including lithium metal or lithium-ion cells or batteries, and specified ignition sources are in place. This includes spare or loose batteries.

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 Containment Bag etc
- 9C.4.4 E-Cigarettes (if permitted) have batteries removed
- 9C.4.5 Checked in PED are switched off
- 9C.4.6 No transport of loose lithium batteries

Guidance documents

- IATA Dangerous Goods Regulations
- US FAA 49 CFR 175.10(a)(18)
- HeliOffshore Safety Performance Model



PASSENGER HANDLING

10. Manifests

10A. Purpose

Ensuring manifests are accurate.

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

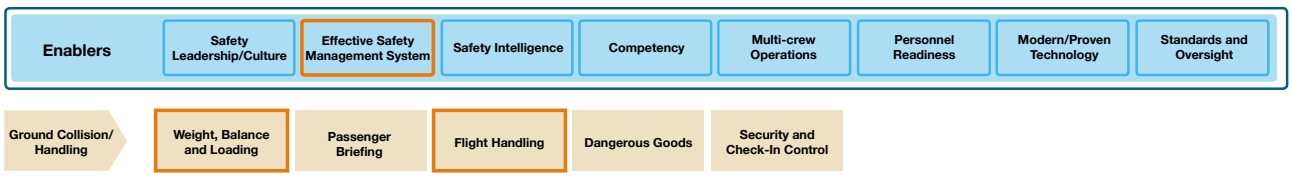
10C.2 The manifest may be hand-written or generated from a computer-based system. Where a hand-written manifest is used, a copy is left with a responsible person on the ground who retains it until the flight is completed.

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.

Guidance documents

- ICAO Annex 6
- ICAO Annex 9
- 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 Helicopter Underwater Escape Training (HUET) trained.

11C. Processes and practices

11C.1 Passengers complete a HUET course to a recognized 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.

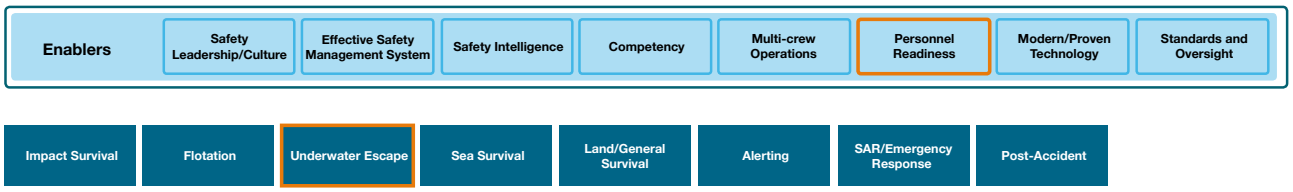
11C.2 This training is completed in conjunction with wet dingy drills using emergency equipment similar to that installed on the aircraft.

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.

Guidance documents

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



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 IOGP Report 690-0 – *Introduction to Offshore Helicopter Recommended Practices.*

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

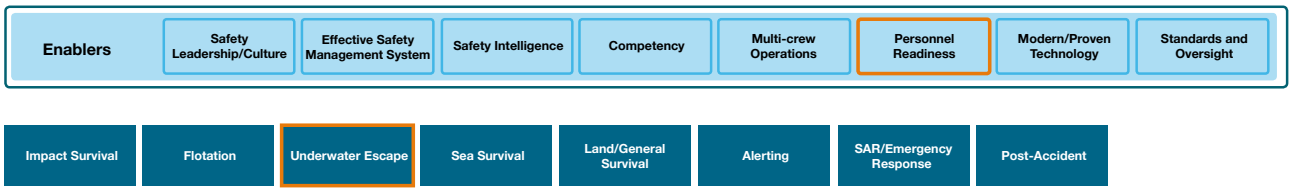
12C.1 Passenger training in the use of the CA-EBS to ensure user proficiency is completed every 4 years.

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.

Guidance documents

- OPITO Training Standard - Helicopter Underwater Escape Training (HUET) with Compressed Air Emergency Breathing System (CA-EBS)
- BS 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 IOGP Report 690-0 – *Introduction to Offshore Helicopter Recommended Practices.*

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.

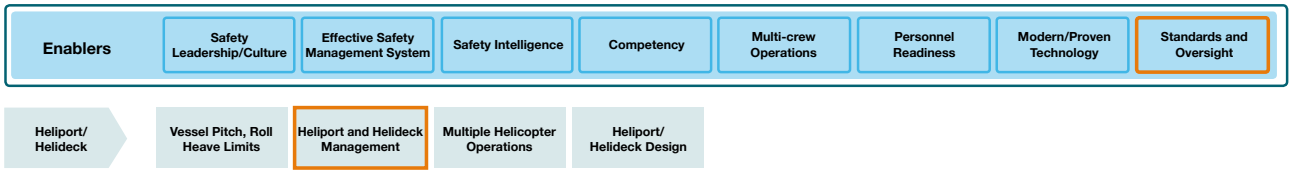
13C. Processes and practices

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 formalized 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 the helideck's obstruction free areas.

Guidance documents

- HSAC RP163
- UK CAA CAP 437
- HeliOffshore Safety Performance Model



HELIDECK

14. Helideck – reporting

14A. Purpose

Ensuring 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 as competent aviation weather observers using automated weather observing systems, e.g., offshore installed AUTOMETARS and regional meteorological forecasting systems, or Automated Weather Observing System (AWOS), are used to provide weather information.

14C.2 The following information is provided:

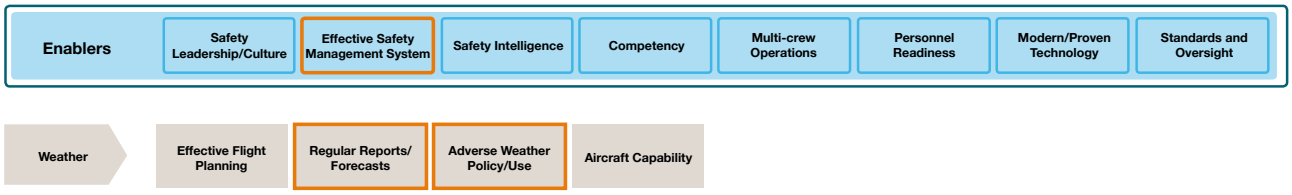
- 14C.2.1 Wind speed and direction
- 14C.2.2 Barometric pressure
- 14C.2.3 Air temperature and dew point temperature
- 14C.2.4 Visibility
- 14C.2.5 Cloud base
- 14C.2.6 Present weather
- 14C.2.7 Sea state

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

14C.4 All reporting equipment maintained and calibrated in accordance with original equipment manufacturer's instructions and the results recorded in a register.

Guidance documents

- CAP 437
- ICAO Annex 6
- IOGP Report 697 - *Offshore helidecks and facilities*
- 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

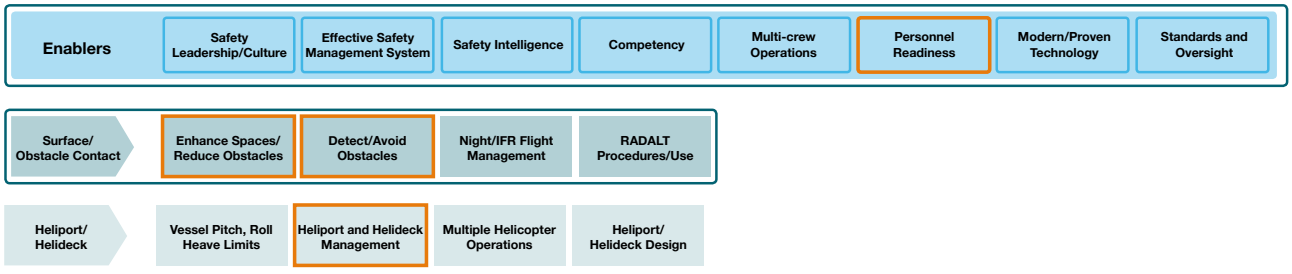
15C.1 The aircraft operator and the helideck operator has established procedures to prohibit helideck operations when cranes are active.

15C.2 During helicopter operations, crane jibs, A frames, etc., in the vicinity of the helideck are stowed in a safe position clear of the obstacle protected surfaces and flight paths.

15C.3 Procedures are in place to communicate the crane situation to helicopter crews.

Guidance documents

- CAP 437 Chapter 6.24
- HSAC RP163
- HSAC RP81
- BARSOHO
- 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

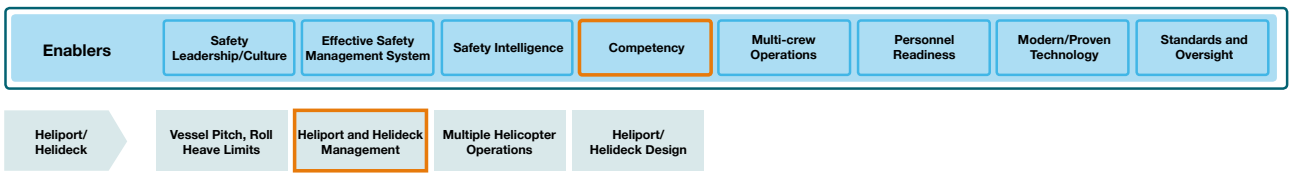
16C.1 Offshore installations have a HLO and HDAs and other supporting staff, including emergency response personnel available for all helicopter movements with relevant duties and responsibilities clearly outlined in an up-to-date Helideck Operations and Procedures Manual.

16C.2 All personnel engaged directly in helideck operations or in the general support of helicopter operators undergo initial and recurrent training in accordance with OPITO standards (or an acceptable alternative standard).

16C.3 See Section 8 of IOGP Report 697 - *Offshore helidecks and facilities* for further guidance.

Guidance documents

- OPITO Training Standard - Helideck Emergency Response Team Leader
- BARSOHO
- HSAC Helideck Recommended Practice – RP163 2nd Edition
- IOGP Report 697 - *Offshore helidecks and facilities*
- HeliOffshore Safety Performance Model.



HELIDECK

17. Helideck - passenger control

17A. Purpose

Ensuring that passengers are appropriately escorted.

17B. Expectations

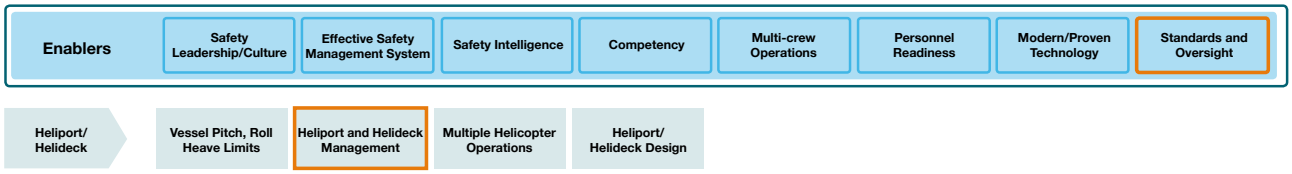
Passengers are properly controlled on helidecks.

17C. Processes and practices

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

Guidance documents

- HSAC RP
- UK CAA CAP 437
- HeliOffshore Safety Performance Model



HELIDECK

18. Rotors Running Refuelling

18A. Purpose

Ensuring Rotors Running 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:

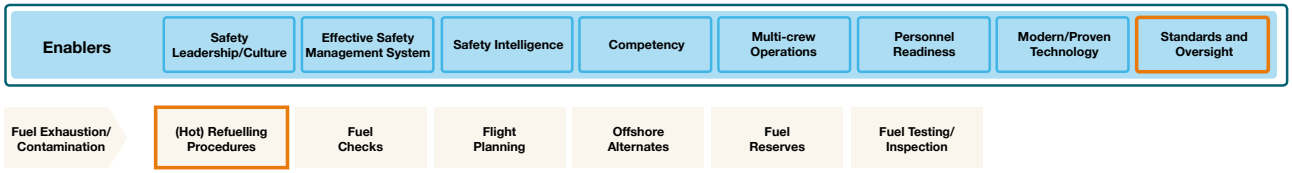
- 18C.2.1 A pilot is at the controls at all times.
- 18C.2.2 Passengers normally disembark prior to refuelling; however, if, for safety reasons, the Pilot in Command (PIC) decides to refuel with the passengers on board, the passengers are informed of this decision and the actions to take in the event of a fire.
- 18C.2.3 Firefighting capability is available and manned with trained personnel.
- 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 are not used during refuelling, and the radar is switched to standby.
- 18C.2.7 A fuel quality check is witnessed by the flight crew prior to refuelling.
- 18C.2.8 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.3 After refuelling, a member of the crew verifies to the flight crew the fuel quantity uplifted and that all equipment has been removed, the fuel cap has been replaced securely and the aircraft is properly configured for flight.

HELIDECK

Guidance documents

- CAP 437 – Chapter 8
- HSAC RP163
- HeliOffshore Safety Performance Model



HELIDECK

19. Ground operations staff – training and competence

19A. Purpose

Ensuring personnel have appropriate training, qualifications, knowledge, skills, and experience.

19B. Expectations

Ground operations staff, including check-in and security staff, are appropriately qualified, experienced, and competent.

19C. Processes and practices

19C.1 There is a training programme which provides ground operations staff with appropriate initial and subsequent training, as defined by their roles and responsibilities, and includes details of the accepted training providers, training syllabi, and persons/organizations responsible for training.

19C.2 A training and authorization record is maintained for all personnel.

19C.3 All training is tracked in an appropriate process.

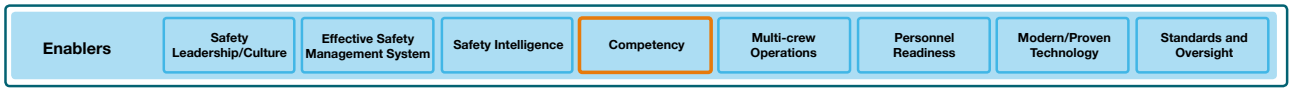
19C.4 Ground operations staff are subject to competence assessments at least every three years.

19C.5 Staff involved in passenger/baggage/freight handling are trained in dangerous goods handling.

19C.6 For further information, see IOGP Report 690-2, Section 4 - Alcohol and Drugs and IOGP Report 697 - *Helidecks and facilities*, Section 8 - Personnel Training.

Guidance documents

- ICAO Annex 17
- ICAO Annex 18
- HeliOffshore Safety Performance Model
- IOGP Report 697 - *Helidecks and facilities*



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 Control Manual (MCM).

1C. Processes and practices

1C.1 All appropriate organizational approvals and certificates as required by the National Aviation Authority (NAA) are in place.

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

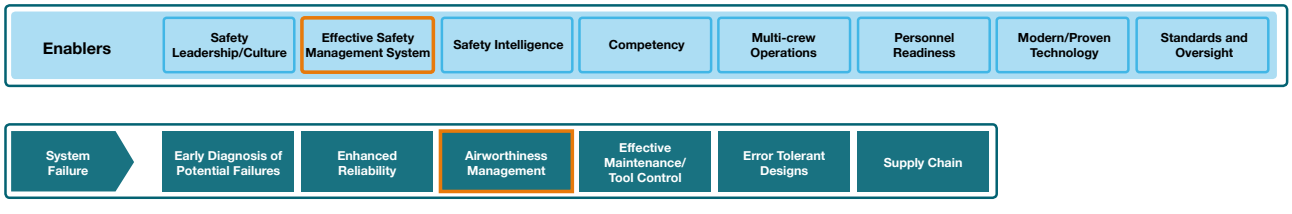
1C.3 The aircraft operator has an internal Aircraft Maintenance Organization (AMO) or a contract with an external AMO to perform maintenance activities for the aircraft operator. This details the scope of contracted activity and the interfaces between the operator and the contracted party.

1C.4 The aircraft operator's continuing airworthiness management has a process to communicate requirements, such as 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 Approved Maintenance Programme (AMP).

1C.5 The aircraft operator has a MCM or equivalent document which meets the requirements of ICAO Annex 6 Part III Chapter 6.2.

Guidance documents

- ICAO Annex 6
- ICAO Doc 10086
- HeliOffshore Safety Performance Model



CONTINUING AIRWORTHINESS

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 An AMP is developed and reviewed in accordance with applicable regulations and approved by the NAA.

2C.2 All airworthiness data and instructions are reviewed and managed, including any Airworthiness Directives (ADs) from the applicable NAA and Service Bulletins (SBs) from the Original Equipment Manufacturer (OEM) or Supplemental Type Certificate (STC) holder.

2C.3 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 are implemented.

2C.4 All defects or damage affecting safe operation, are rectified in accordance with applicable regulations or managed in accordance with the approved Minimum Equipment List (MEL), or contract Minimum Departure Standard (MDS).

2C.5 Maintenance data is retained (see Section 5.2.3 Maintenance Data).

2C.6 All maintenance is planned in accordance with the AMP.

2C.7 All maintenance is controlled and it has been executed by an AMO to the required standard and in adherence to applicable regulations and maintenance data.

2C.8 Modifications are accomplished using data approved by the governing NAA.

2C.9 All continuing airworthiness records (e.g., airframe/ engine logbooks, life limited parts and log cards), including the aircraft operator technical log are properly managed in accordance with the aircraft operator's procedures.

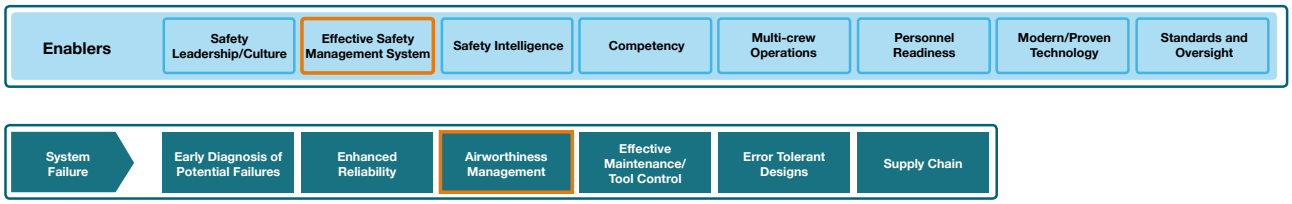
2C.10 The aircraft configuration is monitored and it reflects the current status of the aircraft in accordance with the Type Certificate (TC).

2C.11 Procedures are developed to be included in a manual approved by the NAA, to identify the numbers, duties and responsibilities, qualifications and competence of the staff employed to accomplish the above tasks; and how airworthiness related activities, including those described above, will be accomplished.

CONTINUING AIRWORTHINESS

Guidance documents

- ICAO Annex 6
- BARSOHO BIG 2.4
- HeliOffshore Safety Performance Model



CONTINUING AIRWORTHINESS

3. Continuing airworthiness – approved maintenance programme

3A. Purpose

Ensuring aircraft are airworthy and reliable.

3B. Expectations

The Aircraft Operator manages an 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 organizations for modifications and repairs
- 3C.1.4 Additional instructions proposed by the aircraft operator and approved by the OEM/STC holder and NAA

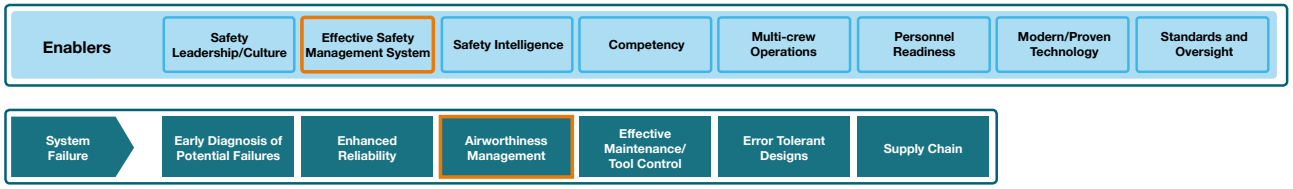
3C.2 The aircraft is only maintained according to one AMP.

3C.3 The AMP is approved by the NAA and is reviewed at least annually, considering the environmental conditions and aircraft utilization, 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 organizations, MRBs, OEM instructions or directives from the governing airworthiness authority

Guidance documents

- ICAO Doc 9760
- HeliOffshore Safety Performance Model



CONTINUING AIRWORTHINESS

4. Continuing airworthiness – maintenance data

4A. Purpose

Ensuring maintenance is conducted to the approved maintenance programme 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 ADs from the applicable NAA, are tracked.

4C.2 All ADs and SBs are evaluated using a documented assessment procedure.

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 to both aircraft and stored components.

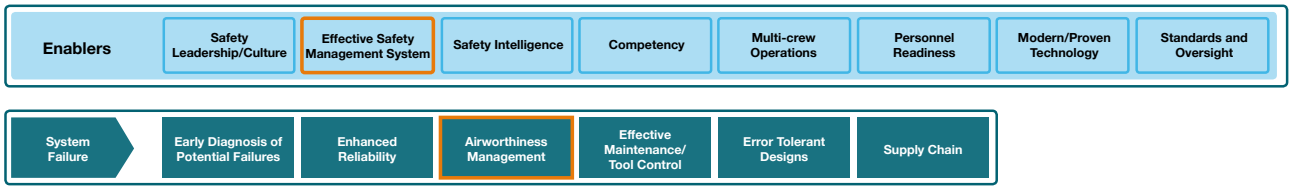
4C.4 The maintenance of a list of compliance by airframe, engine, and STC installed appliance and developing a method to clearly demonstrate the status of compliance for each airframe and currently installed components.

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

4C.6 The current revision status, including temporary revision, of all applicable maintenance data and documentation within the organization (e.g., maintenance manuals, parts catalogues and bulletins) is tracked and checked against the source documents of the OEM. This includes all master copies and copies distributed to the AMO, out-stations, or contractors.

Guidance documents

- ICAO Doc 9760
- HeliOffshore Safety Performance Model



CONTINUING AIRWORTHINESS

5. Continuing airworthiness - minimum equipment list/minimum departure standard

5A. Purpose

Ensuring aircraft are airworthy and reliable.

5B. Expectations

The Aircraft Operator has a Minimum Equipment List (MEL)/Minimum Departure Standard (MDS) for each aircraft in the fleet.

5C. Processes and practices

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

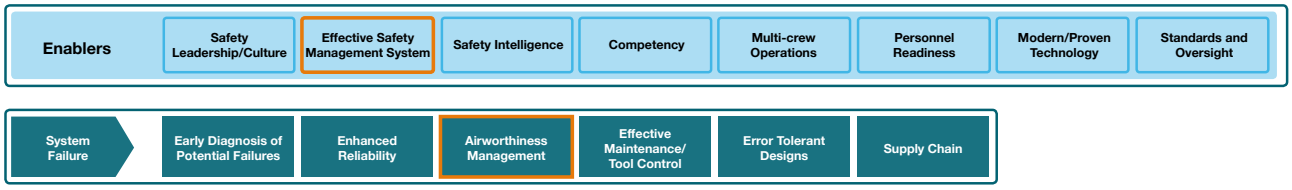
5C.3 The MEL/MDS are readily available to flight crews and maintenance personnel for reference.

5C.4 Required equipment as detailed in contract requirements, in addition to the MEL requirements, are controlled by an MDS, or equivalent.

5C.5 Notify the Pilot-in-Command (PIC) of all deferred defects that affect, or may affect, the safe operation of the aircraft so that the PIC retains the final decision on acceptance of an aircraft with deferred defects.

Guidance documents

- ICAO Annex 6 Part
- ICAO Doc 9760
- HeliOffshore Safety Performance Model



CONTINUING AIRWORTHINESS

6. Continuing airworthiness – aircraft maintenance records

6A. Purpose

Ensuring maintenance is conducted to the approved maintenance programme 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 Document an aircraft records process which, as a minimum, consists 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 Auxiliary Power Unit (APU) logbook(s) (if applicable)
- 6C.2.4 Log cards for any Service Life Limit (SLL) and Time Between Overhaul (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 and:

- 6C.4.1 Details of the ATL content requirements are documented
- 6C.4.2 All defects are immediately recorded in the ATL post-flight
- 6C.4.3 There is provision for the PIC to sign and date such entries including, where appropriate, a nil defect state post-flight

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, One Engine Inoperative (OEI) events, etc.)

CONTINUING AIRWORTHINESS

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, including:

6C.5.5.1 The requirements of the approved AMP for each aircraft type

6C.5.5.2 Control of the forecasting and recording of aircraft and component maintenance as detailed within the appropriate AMP

6C.5.5.3 Details of the required maintenance "due lists" in terms of flying hours, cycles, landings or calendar intervals

6C.5.6 Inventory control

6C.5.7 Deferred defect tracking

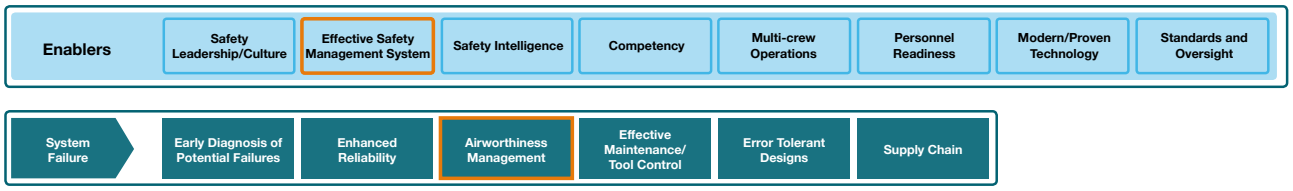
6C.6 All maintenance records of work carried out on its aircraft are maintained to demonstrate that the work has been executed to the required standard.

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.

Guidance documents

- ICAO Annex 6
- HeliOffshore Safety Performance Model



CONTINUING AIRWORTHINESS

7. Continuing airworthiness – reliability programme

7A. Purpose

Ensuring aircraft are airworthy and reliable.

7B. Expectations

The Aircraft Operator has a reliability programme in place appropriate to the size and complexity of the operation.

7C. Processes and practices

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

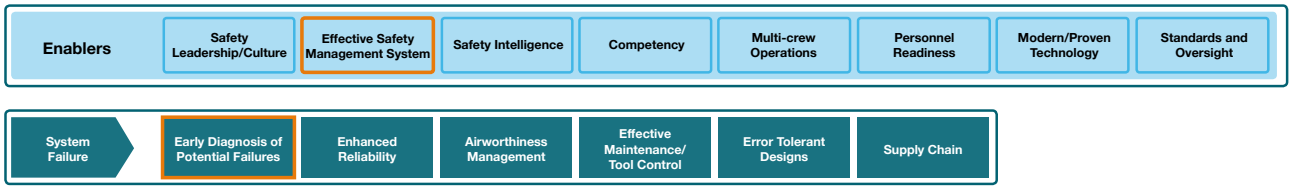
- 7C.1.1 Component Low Mean Time Before Unscheduled Removals (MTBUR) by aircraft type
- 7C.1.2 Flight hour trends of non-serialized parts usage by aircraft type
- 7C.1.3 Flight hour model trends of MEL/MDS usage by system by aircraft type
- 7C.1.4 Flight hour pilot reported discrepancy trends by aircraft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

7C.2 There is a procedure in place to alert the OEM/TC/STC holder to any design feature that increases the risk of a critical error where practical.

7C.3 There is a procedure in place to regularly communicate reliability data with the OEM/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 where practical.

Guidance documents

- ICAO Annex 8
- ICAO Doc 9760
- 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.

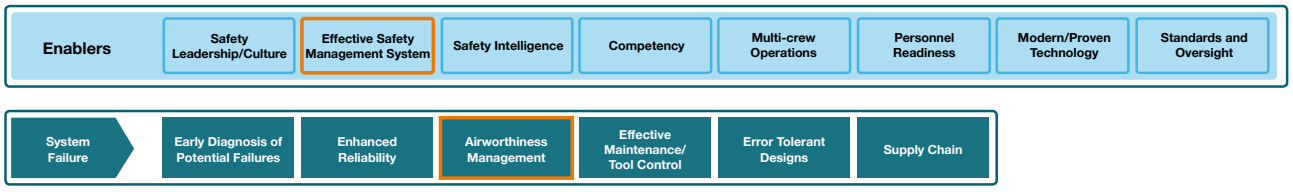
8C. Processes and practices

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.

Guidance documents

- ICAO Doc 9760
- HeliOffshore Safety Performance Model



MAINTENANCE MANAGEMENT

9. Maintenance management – Aircraft Maintenance Organization procedures

9A. Purpose

Ensuring maintenance is conducted to the approved maintenance programme and standards.

9B. Expectations

The maintenance organization has a set of documented procedures.

9C. Processes and practices

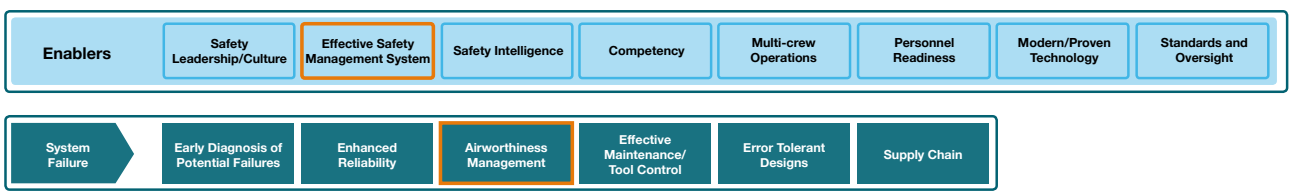
9C.1 Document procedures in a dedicated manual (e.g., Company Maintenance Manual and Maintenance Organization Exposition (MOE)) that is approved by the NAA and amended as necessary and reflects the actual organization processes in place.

9C.2 Document procedures for Quality Assurance (QA) or Quality Control (QC) to allow the maintenance organization to verify that all maintenance and administration is properly performed and to monitor compliance with procedures and regulatory requirements, including contracted maintenance.

9C.3 Ensure the supplier approval process and any contracted maintenance is appropriate for the scale and scope of work, and a list of current contracted (and sub-contracted) organisations is maintained.

Guidance documents

- ICAO Annex 8
- ICAO Annex 6
- HeliOffshore Safety Performance Model



MAINTENANCE MANAGEMENT

10. Maintenance management - maintenance planning

10A. Purpose

Ensuring maintenance is conducted to the approved AMP and standards.

10B. Expectations

An effective process for scheduling of maintenance is in place.

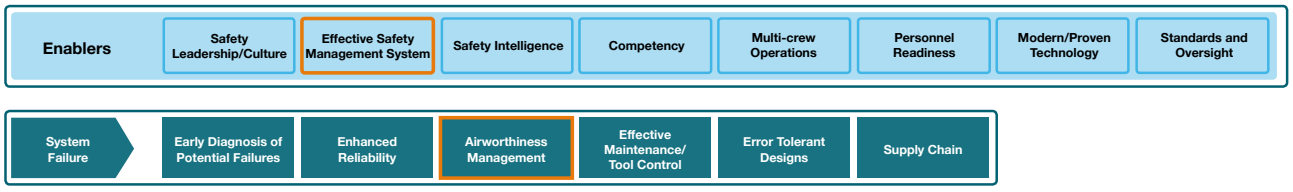
10C. Processes and practices

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, or similar, listing each scheduled maintenance inspection/check/repair/modification required, are issued by the Continuing Airworthiness Management and performed by the AMO.

Guidance documents

- ICAO Annex 8
- HeliOffshore Safety Performance Model



MAINTENANCE MANAGEMENT

11. Maintenance management - maintenance records

11A. Purpose

Ensuring maintenance is conducted to the approved AMP and standards.

11B. Expectations

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

11C. Processes and practices

11C.1 Detail accomplishment of each maintenance task in a work card or worksheet system (or electronic equivalent), which contains detailed records of the work carried out.

11C.2 Any parts utilized 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 aircraft operator procedures and local regulation.

11C.4 Staged Work Sheets (SWS) or computerized task cards are in place for complex tasks that require the use of multiple OEM maintenance manuals or reference materials, (e.g., engine changes) or are likely to be handed over between shifts.

- 11C.4.1 SWS are in place for tasks where the aircraft operator is required to record information and has elected to utilize forms for the process.
- 11C.4.2 SWS are part of a revision process to ensure engineers are using the correct revision of the technical publications.
- 11C.4.3 Design the SWS to reduce the likelihood that steps within a complex task are inadvertently missed and to specifically identify the point(s) at which independent inspections are required as part of the task, or prior to it being hidden during subsequent work.

11C.5 Any duplicate/independent inspection requirement is clearly identified and signed off.

11C.6 Identifying stamps or electronic signatures are detailed in the aircraft operator procedures and are listed in the organization's documented processes against the names of the authorized personnel.

11C.7 The work cards or work sheets are collected into a work package which contains maintenance records in a structured manner.

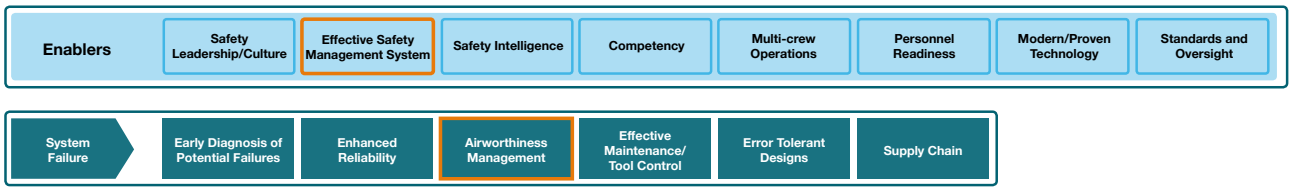
11C.8 Maintenance records refer to the revision status of the maintenance data used.

11C.9 All maintenance records are checked for completeness and compliance as detailed in the aircraft operator procedures.

MAINTENANCE MANAGEMENT

Guidance documents

- ICAO Annex 6
- HeliOffshore Safety Performance Model



MAINTENANCE MANAGEMENT

12. Maintenance management - Foreign Object Debris checks

12A. Purpose

Ensuring maintenance is conducted to the approved AMP 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, cleaning materials, such as rags, and any other extraneous parts and material, and that all access panels removed have been refitted correctly.

12C.2 The verification check is recorded on the maintenance work card system.

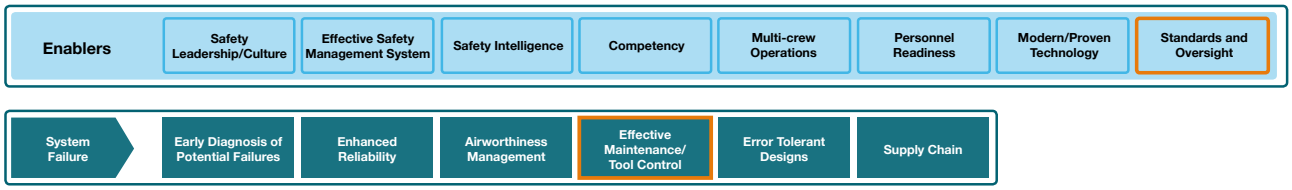
12C.3 Implement a process to prevent Foreign Object Debris (FOD) on aircraft and components under maintenance.

12C.4 Procedures are in place to conduct leak checks when any maintenance has been performed which compromises the integrity of the fuel, oil, hydraulic or pitot static systems.

12C.5 Prevent FOD in areas used for maintenance activities, engine ground running and flight line activities.

Guidance documents

- HeliOffshore Safety Performance Model



MAINTENANCE MANAGEMENT

13. Maintenance management - independent inspections (Note1)

13A. Purpose

Ensuring design and continuing airworthiness practices minimize 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 firstly by an engineer holding a "Certificate of Release to Service (CRS)" authorization, who assumes full responsibility for the satisfactory completion of the work, then a second person not involved in the original task, or similar system (e.g. other engine), who confirms that no deficiencies have been found and that the work has been satisfactorily completed.

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

13C.3 CMT procedures are detailed for independent inspections during complex or lengthy tasks using staged worksheets (e.g., an engine or gearbox replacement, where independent 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 Type Certificate (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 also identified as part of the aircraft operator's Safety Management System (SMS). These may include simple, repetitive tasks, which have been identified as being prone to error (engine cowling closure, oil caps) are subject to a secondary inspections and procedures are in place for these tasks.

13C.7 Other CMTs may include emergency safety equipment as directed by the company.

13C.8 Single engineer independent inspection processes or procedures are prohibited.

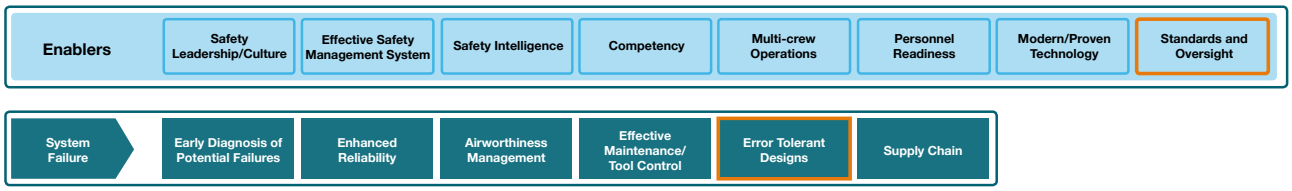
Note 1:

- 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

Guidance documents

- 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 AMP 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 aircraft operator will not operate an aircraft unless it is maintained and released to service by an AMO.

14C.2 Document a system of 'maintenance release to service' for all aircraft, whether the AMO is in-house or a contracted organization, that demonstrates the work specified in the work order is carried out in accordance with the applicable rules and an appropriately authorized engineer considers the aircraft/component ready for service.

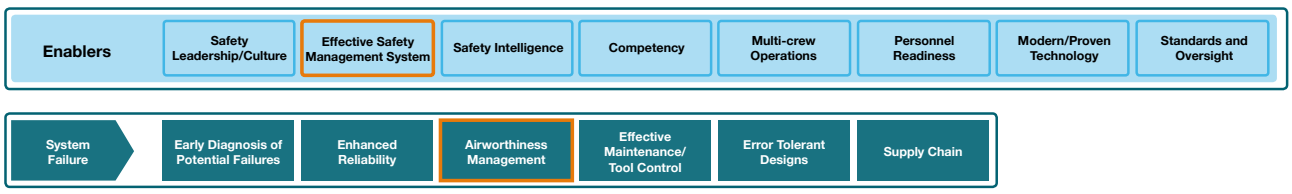
14C.3 A Certificate of Release to Service (CRS) is then issued by appropriately authorised engineers, as authorized by the AMO, where it verifies that all maintenance, as required by the work order, has been properly carried out.

14C.4 Elementary work or servicing (e.g., oil changes and light bulb replacement) is performed under the supervision of an appropriately authorised engineer.

14C.5 Develop and document remote location procedures to manage any aircraft unserviceability at a location where maintenance support is not routinely provided.

Guidance documents

- ICAO Annex 6
- HeliOffshore Safety Performance Model



MAINTENANCE MANAGEMENT

15. Maintenance observation programme

15A. Purpose

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

15B. Expectations

The Aircraft Operator has a structured Maintenance Observation Programme (MOP) in place.

15C. Processes and practices

15C.1 Identify, understand and rectify weaknesses or errors within the organization via a structured MOP, which the operator or AMO has in place.

15C.2 Monitor maintenance practices at regular intervals using formal documented observations of maintenance activity and supporting processes at each operational location.

15C.3 Track and analyse the MOP data and implement appropriate action plans.

15C.4 Monitor the overall performance of the MOP programme in the QA/Compliance programme.

Guidance documents

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

MAINTENANCE MANAGEMENT

16. Quality (Compliance Monitoring) System

16A. Purpose

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

16B. Expectations

The Aircraft Operator and AMO has an independent Quality System (Compliance Monitoring), or QA System.

16C. Processes and practices

16C.1 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. Data is analysed to identify trends by aircraft type/ model and causal factors and appropriate action is put in place to address identified issues.

16C.2 For more details on quality assurance and compliance monitoring, see 690-1 Safety Management Systems, Section 11, Continuous Improvement - Assurance

Guidance documents

- ICAO Annex 8
- IOGP Report 690-1 – *Safety Management Systems*
- 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 is in place that is integral to the AMO's SMS.

17C.2 For more details on occurrence reporting, see Report 690-1, Safety Management Systems, Section 8, Incident reporting, investigation, and learning.

Guidance documents

- ICAO Annex 19 Chapter 5
- HeliOffshore Safety Performance Model

MAINTENANCE MANAGEMENT

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 MCFs are carried out as required by:

- 18C.1.1 The Aircraft Maintenance Manual (AMM)
- 18C.1.2 The aircraft 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 The aircraft operator develops a specific training program for complex Maintenance Check Flights (MCF), appropriate for the complexity of the aircraft and the level of the MCF required. If required, the aircraft operator assigns this MCF training program to a specific selection of flight crew and as required, engineers. See 690-2 Aircraft Operations, Section 41, Flight Crew Training – Recurrent training and Maintenance Check Flights.

18C.3 The flight crew and engineers perform a risk assessment and safety brief prior to any MCF which considers the risks associated with the flight.

18C.4 Only essential personnel are on board the aircraft during any MCF.

Guidance documents

- European Safety Promotion Network - Rotorcraft Team Operations and SMS. Risk Assessment Maintenance Check Flight
- UK CAA CAP 1038 – Check Flight Handbook
- BARSOHO BIG – Section 2.4 Airworthiness Management
- HeliOffshore Safety Performance Model

MAINTENANCE FACILITES AND STORES

19. Maintenance facilities - general

19A. Purpose

Ensuring maintenance is conducted to the approved AMP 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 aircraft 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.

Guidance documents

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

MAINTENANCE FACILITES AND STORES

20. Maintenance facilities - working conditions

20A. Purpose

Ensuring maintenance is conducted to the approved AMP 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 and hearing protection 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 line station maintenance of aircraft, hangars are not essential, but a hangar or other shelter is used during inclement weather (e.g., outside air temperatures lower than 5°C or higher than 40°C, during snowfall, heavy rain, hail, or sandstorms).

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

Guidance documents

- ICAO Annex 8
- ICAO Doc 9760 Chapter 10.6.
- HeliOffshore Safety Performance Model

MAINTENANCE FACILITES AND STORES

21. Aircraft components/material management – equipment and tools

21A. Purpose

Ensuring maintenance is conducted to the approved AMP 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 organization conducting the maintenance and are not privately owned.

21C.2 All tools and equipment are subject to a documented 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. This process also includes any subcontractors working on the premises.

21C.3 All tools are secured when not in use. They are contained in locked tool kits, or a controlled tool store, and the system in use for tracking items, also tracks those that are issued from a tool store, including the contents of each item that is issued from the store as a kit, e.g., rigging kits, or similar kits that contain individual tools, assemblies and parts of tools.

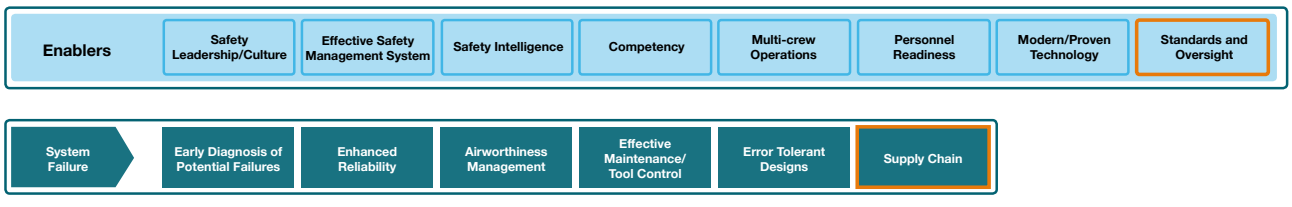
21C.4 A process is in place to track tools and equipment that require inspection, or service or calibration, and a system of labelling all such tools and equipment is established to give information on when the next inspection, service or calibration is due, and/or if the item is unserviceable for any 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.5 Tools and tool kits are subject to a regular QA or QC inspection for serviceability and contents.

21C.6 When a remote outstation is set up, all necessary equipment and supplies are available on site according to the authorized level of maintenance.

Guidance documents

- 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 AMP 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 minimize the effects of condensation.

22C.2 Unauthorized 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).

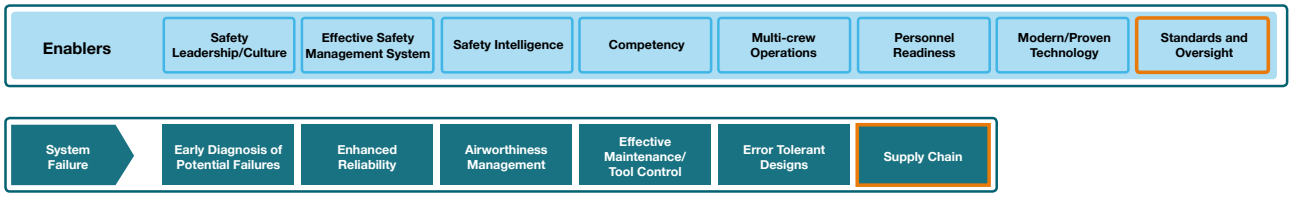
22C.7 Inflammable and explosive materials, such as paints and lubricants (including some chemicals) are stored in a properly constructed fireproof storage compartment which is built and equipped to meet the local fire regulations.

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.

Guidance documents

- ICAO Annex 8
- 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 AMP and standards.

23B. Expectations

The AMO has defined the responsibilities of stores personnel.

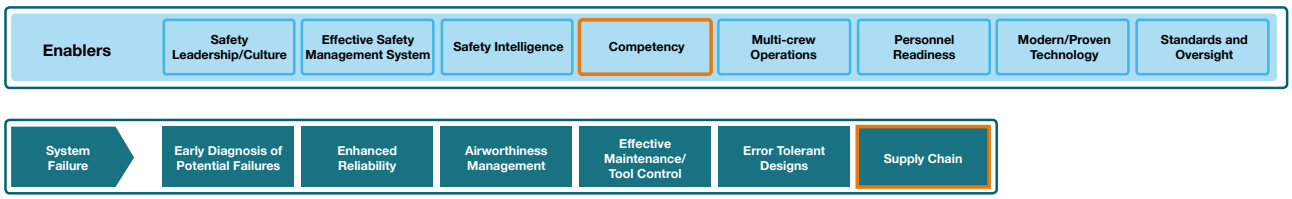
23C. Processes and practices

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.

Guidance documents

- ICAO Annex 8
- HeliOffshore Safety Performance Model



MAINTENANCE FACILITES AND STORES

24. Maintenance - aircraft fuel checks

24A. Purpose

Ensuring the quality of fuel dispensed to aircraft is acceptable.

24B. Expectations

Aircraft fuel is checked for quality.

24C. Processes and practices

24C.1 Document the fuel quality control policies, processes and procedures to ensure fuel quality prior to delivery to the aircraft are verified as adequate in the logistics chain immediately prior to the point at which fuel is received (and, by default, the point at which the aircraft operator becomes the owner or custodian of that fuel).

24C.2 Aircraft fuel checks are carried out daily, or as specified by the airframe manufacturer.

- 24C.2.1 For all helicopters
- 24C.2.2 For all aeroplanes under 5,700kg MTOW
- 24C.2.3 For all aircraft re-fuelled at remote locations, for example, desert/jungle landing strips or aerodromes and offshore locations

24C.3 Water in suspension tests are carried out using a recognized process and samples are retained for 24 hours or until the next sample is taken, whichever is later:

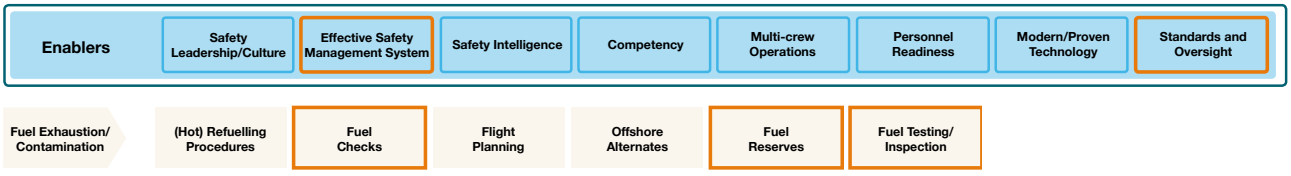
- 24C.3.1 Inspect and test fuel samples for contaminants and water visually and using water detecting capsule kits or equivalent detection aids.

24C.4 Samples that are a minimum of 0.5 litre are taken, unless specified otherwise by the aircraft manufacturer.

24C.5 Sample jars are clearly labelled such that the aircraft and sump drain or tank group from which the sample was taken can be clearly identified.

Guidance documents

- CAP 748
- 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:

- 25C.2.1 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. This approval is documented along with any required mitigations.
  - 25C.2.1.1 In no case may an approved work period authorized under the above process exceed 16 hours.
- 25C.2.2 Each full working shift is followed by a minimum 10-hour rest period.
- 25C.2.3 When working a split shift operation, at least 6 hours uninterrupted rest is provided excluding travel.

25C.3 There is a minimum of seven days off per month of which at least four are in a minimum of two-day periods. When the location or climate is arduous, the rest period is increased to minimize fatigue.

25C.4 Engineering staff on rotating assignments that arrive following prolonged or overnight travel or travel exceeding four time zone changes, are not rostered for duties until the minimum 10 hours rest period is met.

25C.5 A process is in place which defines the required man hours for each maintenance task, and links this to maintenance planning and forecasting.

25C.6 Engineers working hours are recorded.

Guidance documents

- CAP 716 Aviation Maintenance Human Factors
- 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, skills, 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 Management Organization (CAMO) or AMO, whether these are performed in-house or by a contracted organization.

26C.2 Competence and experience requirements for these appointments and other supervisory, licensed, and authorized 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 aircraft operator or maintenance organization 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 organization and includes expiry and renewal dates for the authorisations granted.

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

26C.6 Training and authorisation records are maintained for all certifying personnel in the Continuing Airworthiness functions and the AMO.

Guidance documents

- ICAO Annex 8
- HeliOffshore Safety Performance Model

MAINTENANCE PERSONNEL

27. Maintenance personnel – competence and 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 Establish a training programme, which provides all responsible personnel, including management, with appropriate initial induction, relevant type 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 Maintain training records for all personnel and track them in an appropriate process.

27C.3 Establish and document a formal training process for maintenance personnel, who have aircraft certification authorisations, to receive and have OEM, or equivalent level training, on the type of aircraft to be used.

27C.4 Provide Aircraft Type Engineers (where applicable) with OEM, or equivalent level training, on the aircraft type for which they are responsible.

27C.5 Conduct continuation/recurrent training at least every two years for maintenance personnel, with aircraft certification authorisations, and include as a minimum:

- 27C.5.1 Type-specific training
- 27C.5.2 Changes in relevant regulatory requirements
- 27C.5.3 Change in company organizational procedures
- 27C.5.4 Human factors
- 27C.5.5 Issues identified from any internal or external analyses of incidents
- 27C.5.6 Information on relevant AD/SBs or similar documents issued since the last training session
- 27C.5.7 Changes in the aircraft operator's SMS

27C.6 Document and perform competence assessments on maintenance and support personnel, who have certification authorization, at least every two years.

27C.7 Provide a training programme that addresses initial, on-going training and competency for maintenance support personnel performing the continuing airworthiness function, including maintenance planning and technical records staff.

MAINTENANCE PERSONNEL

27C.8 Provide continuation training, including human factors, training to all other maintenance support personnel, on a two-yearly basis.

27C.9 Prior to promotion to a more senior position or supervisory roles, personnel receive formal instruction in company procedures and responsibilities applicable to the new position and management training appropriate to their level in the company.

Guidance documents

- ICAO Annex 8
- HeliOffshore Safety Performance Model

28. Reserved

MAINTENANCE PERSONNEL

29. Reserved

MAINTENANCE PERSONNEL

30. 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 (CRS).

30C. Processes and practices

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

Guidance documents

- ICAO Annex 8
- HeliOffshore Safety Performance Model

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 Health and Usage Monitoring System (HUMS).

31C. Processes and practices

31C.1 The HUMS is capable of monitoring the rotor and rotor drive systems. For detailed specification, see 690-5 - *Helicopter and Equipment*, Section 10.

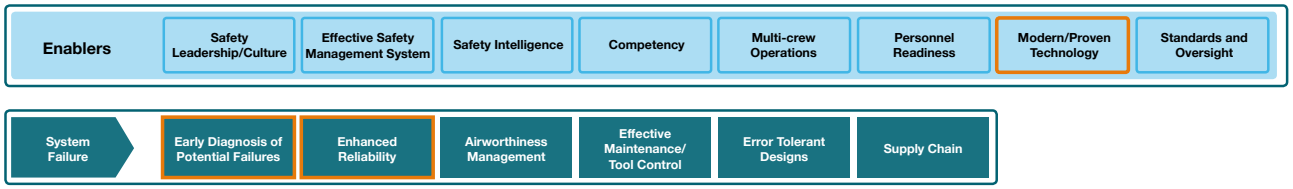
31C.2 The HUMS is certified to CS-29.1465.

31C.3 The HUMS is OEM supported.

31C.4 HUMS procedures are documented, to provide an auditable record of the actions and decisions taken and include references to maintenance work cards, where relevant.

Guidance documents

- HeliOffshore HUMS Recommended Practice
- 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

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

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 prior to the aircraft departing on its next flight.

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

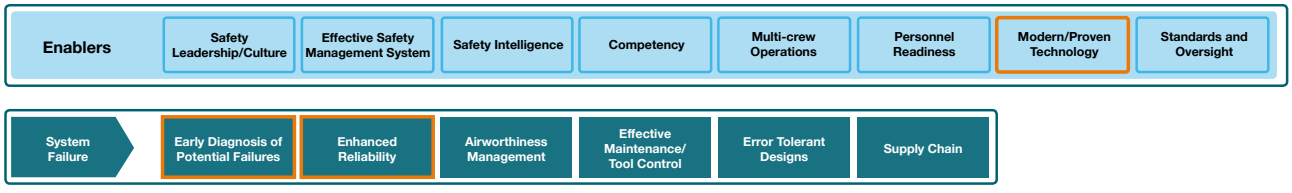
32C.2.1 Where there are no HUMS exceedances – the aircraft is clear for dispatch with no further action.

32C.2.2 With a yellow, amber, or intermediate HUMS exceedance: the dispatch of an aircraft with an existing alert is subject to either a maintenance action which is recorded and certified, or to control process within the aircraft operator's continued airworthiness organization, a record of which is in the aircraft approved documentation.

32C.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.

Guidance documents

- HeliOffshore HUMS Recommended Practice (Latest version of HO-HUMS-RP)
- 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:

33C.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.

33C.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.

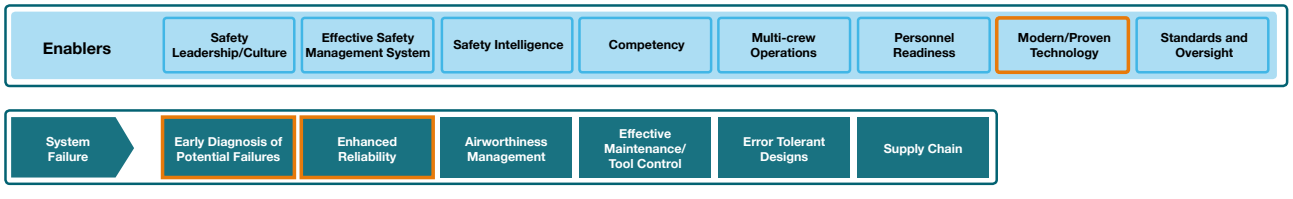
33C.1.3 Where aircraft are based offshore, in remote locations, or detached to another base, arrangements are made using portable ground stations and platform internet connections to provide an equivalent capability where practicable. The total time between downloads is at a minimum daily.

33C.2 There is a secondary HUMS monitoring system using Automated Detection Tools (ADT), where one is available for the aircraft type and is supported by the OEM.

33C.3 There are procedures to record defects, warnings, out of tolerance conditions and rising trends that have been referred for detailed analysis, to either the aircraft operator's HUMS specialists or the OEM support organization.

Guidance documents

- HeliOffshore HUMS Recommended Practice (Latest version of HO-HUMS-RP)
- 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:

34C.2.1 The main system, (e.g., Data Acquisition Unit or Data Acquisition Processing Unit (DAPU), Bearing Monitor Unit (BMU) or similar), is serviceable.

34C.2.2 The unserviceability or unavailability of any other single component of the system, including individual accelerometers, is:

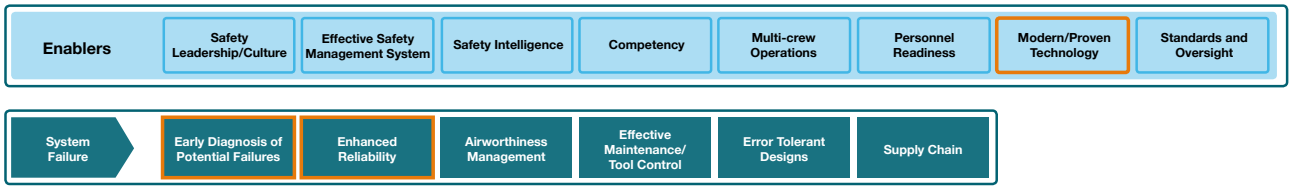
34C.2.2.1 Failure while close monitoring: zero flying hours

34C.2.2.2 Failure while under normal monitoring: 15 flying hours

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

Guidance documents

- Industry Recommended Practice - HeliOffshore HUMS Recommended Practice
- HeliOffshore Safety Performance Model



HUMS

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 Provide the necessary supporting processes for the effective use of HUMS, in particular:

- 35C.1.1 Provide HUMS System Performance Reports — HeliOffshore HUMS Recommended Practice (HO HUMS RP) Section 8 and Annex 1 — HUMS KPI.
- 33C.1.2 Provide initial and recurrent HUMS training for all maintenance and HUMS analysis personnel, relevant to the competency level required for their role (HO HUMS RP) Section 10.

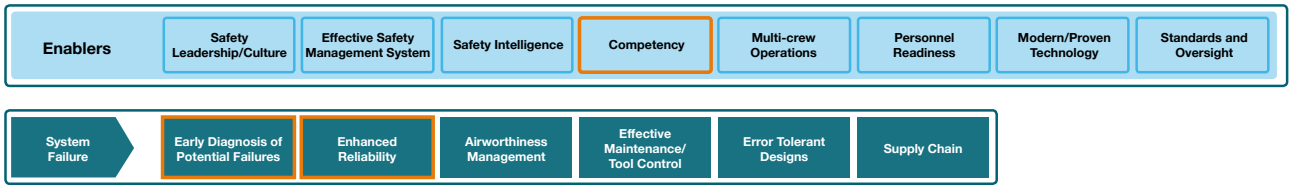
35C.2 The support processes for HUMS are managed in accordance with the HeliOffshore HUMS Recommended Practice (HO-HUMS-RP), including:

- 35C.2.1 Acronyms – typical HUMS processes, etc.
- 35C.2.2 Definitions – including personnel typically authorized to review, analyse, and certify HUMS data.
- 35C.2.3 Scope – clarification of terms, etc.
- 35C.2.4 Ground station software and data management – databases, hardware processes, etc.
- 35C.2.5 Download and primary analysis – excepting areas above where additional IOGP guidance is provided.
- 35C.2.6 HUMS data collection.
- 35C.2.7 Communication – internal, external, etc.
- 35C.2.8 Automated detection tools and web portals – interconnectivity, system use, OEM instructions.
- 35C.2.9 System performance reports – original equipment Manufacturer/overhaul facility support, defect trending reports.
- 35C.2.10 responsibilities and process descriptions – HUMS staff responsibilities, process descriptions, etc.
- 35C.2.11 Training – defines training for all staff.
- 35C.2.12 Management Oversight – corporate oversight, departmental oversight, line level oversight.
- 35C.2.13 Quality assurance – audit plan, documentation, etc.
- 35C.2.14 Appendices – include QA checklists for HUMS.

HUMS

Guidance documents

- HeliOffshore HUMS Recommended Practice (Latest version of HO-HUMS-RP)
- HeliOffshore Safety Performance Model



HUMS

36. HUMS – data transfer

36A. Purpose

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

36B. Expectations

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 system allows:

36C.1.1 Remote (wireless or other means) downloads.

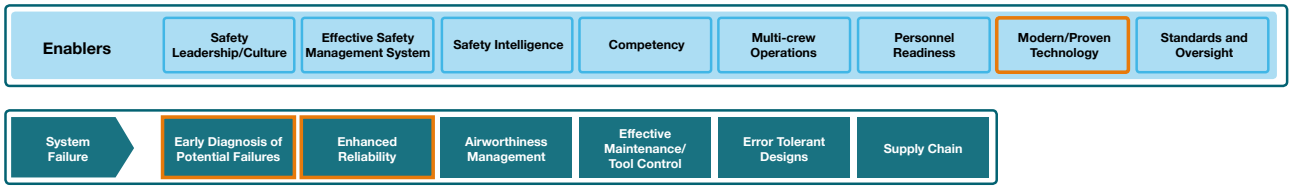
36C.1.2 Inflight exceedances to be transmitted to a base, where approved and agreed with the NAA and OEM.

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 an appropriately qualified member of staff, based on approved procedures and maintenance data.

Guidance documents

- HeliOffshore HUMS Recommended Practice (Latest version of HO-HUMS-RP)
- HeliOffshore Safety Performance Model



International Association of Oil & Gas Producers

IOGP REPORT 690-5

Helicopter and Equipment

1. Equipment serviceability

1A. Purpose

Ensuring that all critical safety equipment is serviceable.

1B. Expectations

Equipment fitted to contracted aircraft is serviceable within defined limits specified in the Minimum Equipment List (MEL)/Minimum Departure Standard (MDS).

1C. Processes and Practices

1C.1 The MEL and contracted MDS, if applicable, includes serviceability requirements for all company required installed equipment described in this document.

1C.2 Unless otherwise stated, the maximum deferable period for all company required installed equipment is Category C or equivalent terminology (10 days).

1C.3 The MDS is agreed with the aircraft operator prior to contract start and updated as required.

1C.4 If no MEL or MDS is in place, all aircraft equipment is serviceable on departure.

2. Certification standard

2A. Purpose

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

2B. Expectations

Contracted helicopters meet an appropriate certification standard.

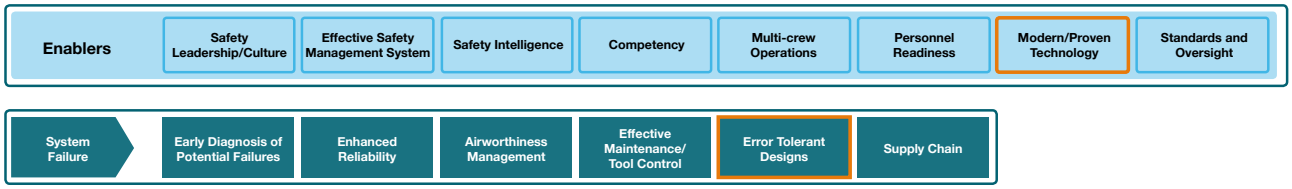
2C. Processes and Practices

2C.1 Contracted helicopters are certified to one of the following specifications:

- 2C.1.1 United States Code of Federal Regulations Title 14 Part 29, Amendment 45 – Airworthiness Standards Transport Category Rotorcraft (Federal Aviation Regulation (FAR) 29)
- 2C.1.2 Joint Aviation Authorities Joint Airworthiness Regulations 29 – Issue 1 (JAR 29)
- 2C.1.3 European Aviation Safety Agency (EASA) CS-29, Certification Specifications, Acceptable Means of Compliance for Large Rotorcraft, Initial issue
- 2C.1.4 United States Code of Federal Regulations Title 14 Part 27, Amendment 31 - Airworthiness Standards Transport Category Rotorcraft (FAR 27)
- 2C.1.5 Joint Aviation Authorities Joint Airworthiness Regulations JAR 27, Issue 1
- 2C.1.6 EASA CS-27, Acceptable Means of Compliance for Small Rotorcraft, initial issue

Guidance documents

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



3. Instrument flight rules - equipment

3A. Purpose

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

3B. Expectations

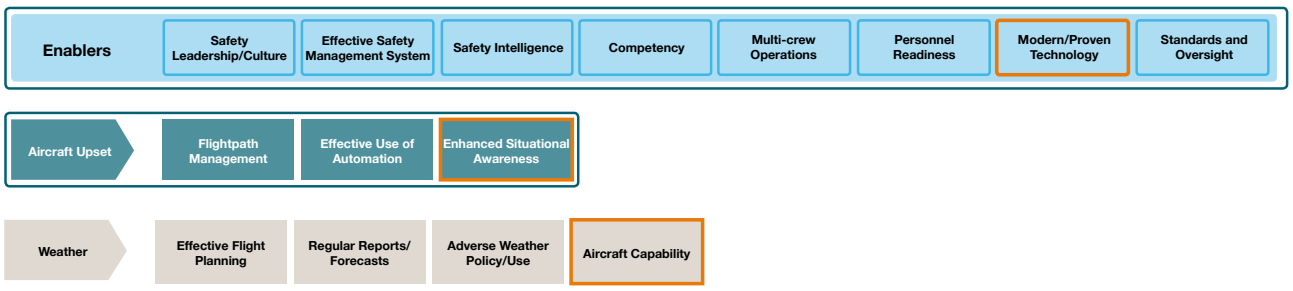
Contracted helicopters are equipped for Instrument Flight Rules (IFR) operations.

3C. Processes and Practices

3C.1 Contracted helicopters are fully equipped for IFR operations relevant to the region of operations.

Guidance documents

- ICAO Annex 6
- HeliOffshore Safety Performance Model



4. Aircraft automation

4A. Purpose

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

4B. Expectations

Contracted aircraft are equipped with appropriate flight automation.

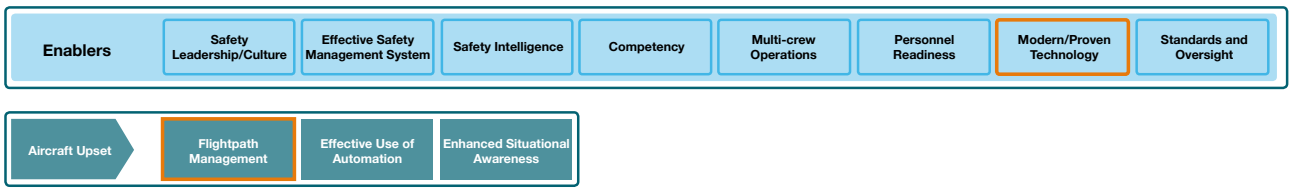
4C. Processes and Practices

4C.1 Contracted aircraft have a four-axis Automatic Flight Control System (AFCS).

4C.2 For further information and operational requirements, see 690-2 Aircraft Operations, Section 5C.

Guidance documents

- ICAO Annex 6
- HeliOffshore Flightpath Management Recommended Practices
- HeliOffshore Safety Performance Model



5. Aircraft-mounted emergency locator transmitters

5A. Purpose

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

5B. Expectations

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

5C. Processes and Practices

5C.1 The ELTs are compliant with European Technical Standard Order (ETSO) C126a or later approved version.

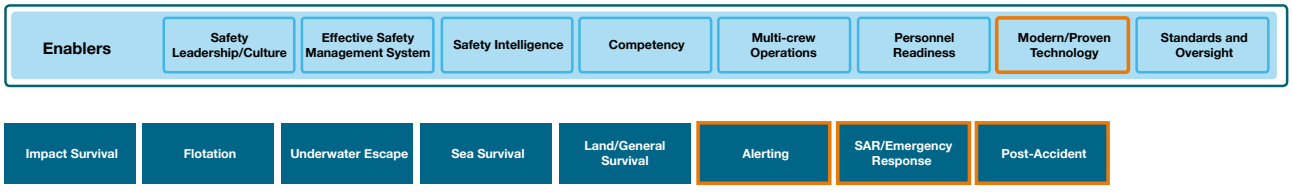
5C.2 ELT/Crash Position Indicator (CPI) has a minimum specification of Cosmicheskaya Sistema Poiska Avariynyh Sudov (COSPAS)/Search and Rescue Satellite Aided Tracking System (SARSAT), 406 MHz capable, with an identification code registered to the aircraft and aircraft operator, GPS capability, and can transmit on 121.5/243 MHz.

5C.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.

5C.4 For the requirements of ELTs fitted to life rafts, see Section 690-5, Section 11.

Guidance documents

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



6. Underwater locator beacon fitted to cockpit voice recorder and flight data recorder

6A. Purpose

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

6B. Expectations

Contracted aircraft are fitted with a Cockpit Voice Recorder (CVR)/Flight Data Recorder (FDR) that is fitted with an Underwater Locator Beacon (ULB) for offshore/over water flights.

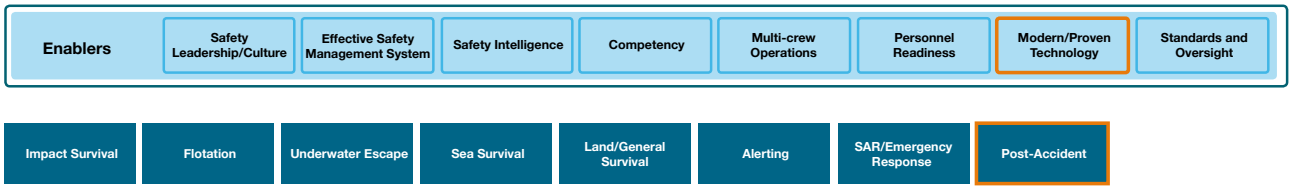
6C. Processes and Practices

6C.1 The ULB has a minimum 90-day battery life and is compliant with ETSO C121a or later approved version.

6C.2 The ULB is attached to the CVR and FDR, or combined CVR/FDR.

Guidance documents

- ICAO Annex 6
- EASA Air Ops CAT.IDE.A.185
- SAE AS8045A – Minimum Performance Standard for Acoustic Underwater Locating Devices
- HeliOffshore Safety Performance Model



7. Helicopter Terrain Awareness Warning System

7A. 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.

7B. Expectations

Contracted helicopters are fitted with a Helicopter Terrain Awareness Warning System (HTAWS) as a minimum.

7C. Processes and Practices

7C.1 HTAWS is fitted when available for the helicopter type and region.

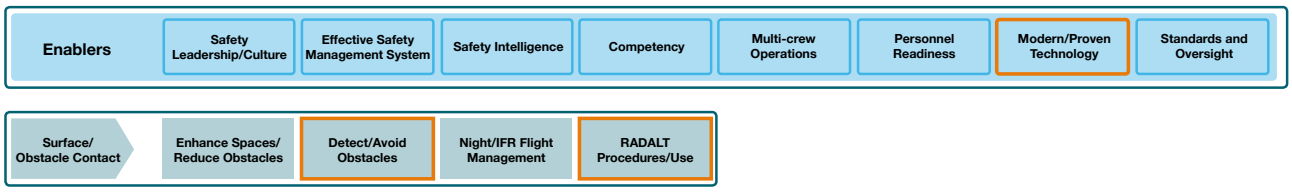
7C.2 If available and certified for the type, offshore modes are installed.

7C.3 There is a documented process to ensure that the latest version of the database for predictive terrain hazard warnings is installed.

7C.4 For further information and operational requirements, see 690-2 - Aircraft Operations, Section 6C.

Guidance documents

- ICAO Annex 6
- HeliOffshore Safety Performance Model



8. Airborne Collision Avoidance Systems

8A. Purpose

The prevention of mid-air collisions.

8B. Expectations

Contracted aircraft are fitted with an Airborne Collision Avoidance System (ACAS).

8C. Processes and Practices

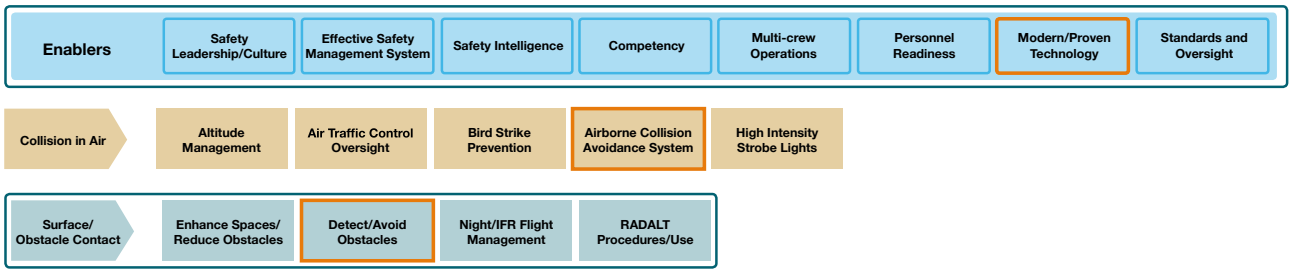
8C.1 At a minimum, ACAS I is installed.

8C.2 ACAS II is installed, if available and certified and retrofittable, for the aircraft type unless operations are in low density air traffic areas and supported by a Risk Assessment.

8C.3 For operational requirements, see 690-2 - Aircraft Operations, Section 7.

Guidance documents

- ICAO Annex 10
- BARSOHO Implementation Guidelines v4 7.4
- HeliOffshore Safety Performance Model



9. Helicopter Flight Data Monitoring

9A. Purpose

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

9B. Expectations

Contracted aircraft are fitted with Helicopter Flight Data Monitoring (HFDM) recording equipment.

9C. Processes and Practices

9C.1 The minimum recorded and synchronized parameters of the HFDM system are:

- 9C.1.1 GPS location
- 9C.1.2 Radar height above ground level (AGL)
- 9C.1.3 Altitude
- 9C.1.4 Ground speed
- 9C.1.5 Indicated air speed (can be derived from video recording)
- 9C.1.6 Vertical speed
- 9C.1.7 Heading
- 9C.1.8 UTC time
- 9C.1.9 Pitch and roll attitudes
- 9C.1.10 Pitch, roll, and yaw rates
- 9C.1.11 Normal, longitudinal, and lateral accelerations
- 9C.1.12 Weight on wheels with elapsed flight time; (when the Radar Altimeter (RadAlt) indicates the aircraft has landed or if calculated AGL is used, when parameter is less than 10 feet)
- 9C.1.13 Minimum record rate 1 per second

9C.2 A serviceability policy for both airborne and ground station equipment has been established.

- 9C.2.1 System unserviceability is not to exceed 25 flight hours between data downloads.

9C.3 For further information and system requirements see 690-2 - Aircraft Operations, Section 8C.

Guidance documents

- UK CAA CAP 739
- FAA CA 120.82
- HeliOffshore Safety Performance Model

10. Health and usage monitoring system

10A. Purpose

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

10B. Expectations

Contracted helicopters have a health and usage monitoring system (HUMS) installed, which is supported by the Original Equipment Manufacturer (OEM) and meets the documented certification requirements, such as CS-29.1465.

10C. Processes and Practices

10C.1 A serviceability policy for both airborne and ground station equipment has been established (See 690-4 - Engineering, Section 34).

10C.2 The HUMS tracks vibration data using a combination of spectrum analysis and advanced diagnostic (proprietary signal processing) techniques.

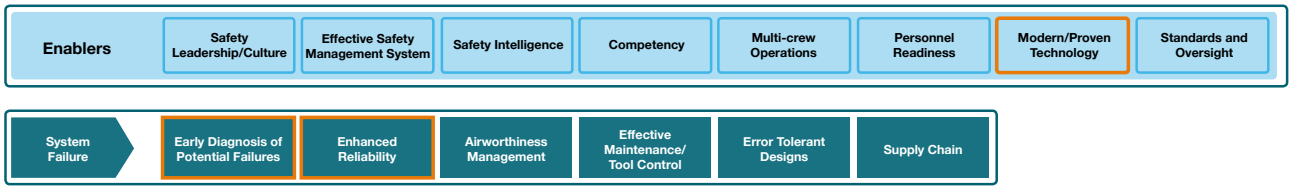
10C.3 It has a diagnostic capability for every dynamic component in the drive train, including:

- 10C.3.1 Engine to main gearbox input drive shafts
- 10C.3.2 Main gearbox shafts, gears, and bearings
- 10C.3.3 Accessory gears, shafts, and bearings
- 10C.3.4 Tail rotor drive shafts and hanger bearings
- 10C.3.5 Intermediate and tail gearbox gears, shafts, and bearings
- 10C.3.6 Main and tail rotor track and balance
- 10C.3.7 Engine health

10C.4 For further information and system operational requirements, see 690-4 - Engineering, Sections 31, 32, 33, 34, 35 and 36.

Guidance documents

- ICAO Annex 6
- HeliOffshore HUMS Best Practice Guide
- EASA CS29.1465
- CAP 753 - Vibration Health Monitoring
- HeliOffshore Safety Performance Model



11. Life rafts

11A. Purpose

Ensuring occupants can survive after a ditching event.

11B. Expectations

Contracted offshore helicopters are fitted with life rafts compliant with ETSO C70 (or ETSO 2C505) sufficient for the maximum number of persons on board.

11C. Processes and Practices

11C.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.

11C.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.

11C.3 All life rafts are equipped with an ELT which has COSPAS-SARSAT with an identification code registered to the aircraft and aircraft operator, 406 MHz, GPS, and transmits on 121.5/243 with voice capability, in addition to an approved offshore survival kit.

11C.4 All loose equipment is attached to the raft with a lanyard.

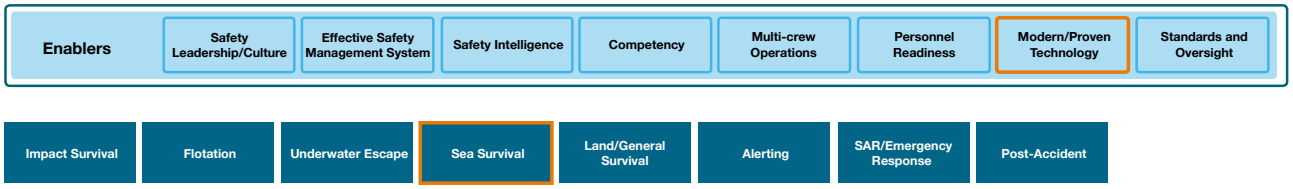
11C.5 A minimum of one life raft is externally mounted.

11C.6 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.

11C.7 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.

Guidance documents

- ICAO Annex 6
- HeliOffshore Safety Performance Model



12. Helicopter cabin push-out windows

12A. Purpose

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

12B. Expectations

Helicopters are fitted with emergency push-out windows in locations suitable for emergency underwater egress.

12C. Processes and Practices

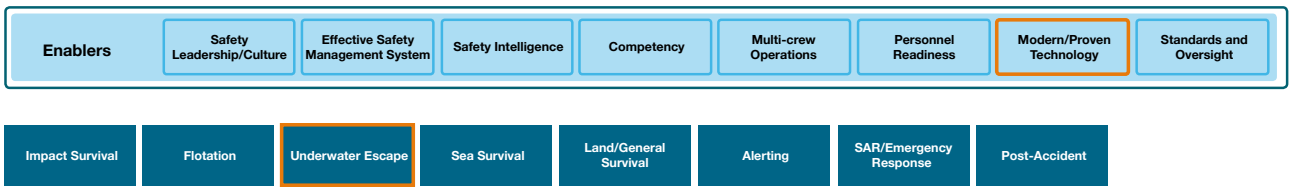
12C.1 Emergency push-out windows and Type IV exits are installed in all locations that are suitable for emergency underwater egress (typically those greater than 430 mm by 356 mm).

12C.2 All push-out windows and Type IV Emergency Exits are clearly highlighted with Helicopter Emergency Escape Lighting (HEEL) – see 690-5, Section 13 – Emergency Exit Lighting.

12C.3 There is a suitable means of opening that is resistant to inadvertent operation and which is suitably marked by placards and contrasting colour(s).

Guidance documents

- 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. Leaflet 25-100
- UK CAA CAP 747 GR No 9
- 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



13. Helicopter emergency exit lighting

13A. Purpose

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

13B. Expectations

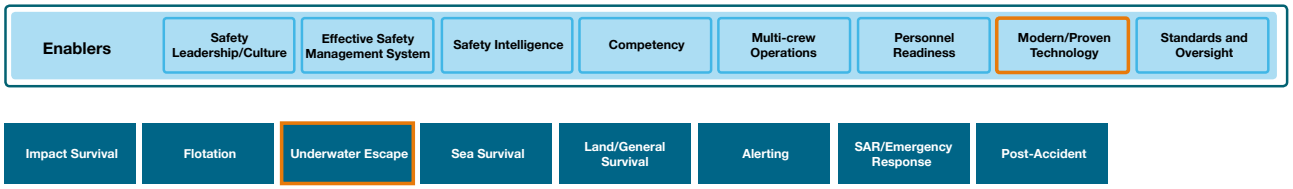
HEEL systems are fitted.

13C. Processes and Practices

13C.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.

Guidance documents

- ICAO Annex 6
- BARSOHO Implementation Guidelines v4 20.3
- HeliOffshore Safety Performance Model



14. Seating layout

14A. Purpose

Ensuring the occupants can escape and survive in the event of a crash, capsize or submersion.

14B. Expectations

That the occupants can safely escape from the helicopter.

14C. Processes and Practices

14C.1 Helicopter passengers are seated no more than one seat from a push out window or emergency exit.

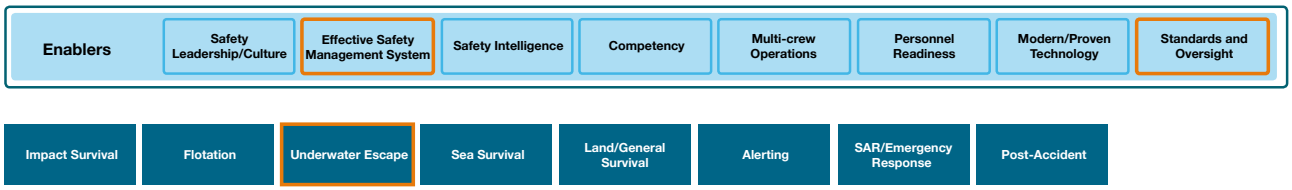
14C.2 Helicopter seat rows are aligned with push out windows or emergency exits.

14C.3 Sideways-facing seats are not used.

14C.4 For further information on seating of passengers see Report 690-3, Section 5, Passenger handling

Guidance documents

- EASA AMC1 SPA.HOFO.165(h) Additional procedures and equipment for operations in a hostile environment
- BARSOHO Implementation Guidelines v4 20.3
- HeliOffshore Safety Performance Model



15. Tail camera

15A. Purpose

Improving situational awareness.

15B. Expectations

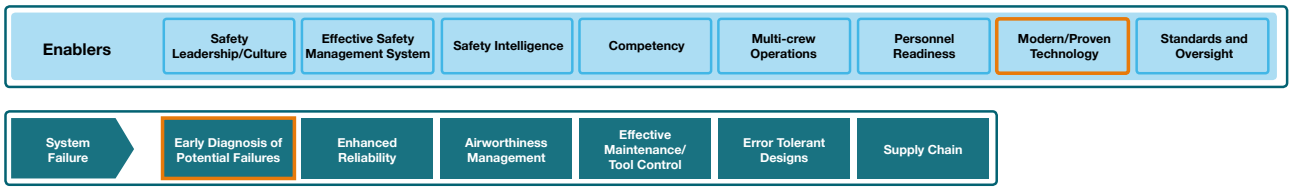
A forward-facing tail camera is fitted, if available.

15C. Processes and Practices

15C.1 A forward-facing tail camera with presentation of the picture in the cockpit is fitted, where available for the aircraft type.

Guidance documents

- BARSOHO Implementation Guidelines v4 4.2
- HeliOffshore Safety Performance Model



16. Cockpit camera

16A. Purpose

Preventing recurrence of accidents or incidents and supporting accident and incident investigations.

16B. Expectations

A cockpit camera is fitted.

16C. Processes and Practices

16C.1 The cockpit is equipped with a camera, with adequate fidelity and a recording function.

16C.2 The camera is fitted in the cockpit with a clear view of the instrument panel and relevant controls.

16C.3 Procedures are in place to use the data from cockpit cameras for accident and incident investigation.

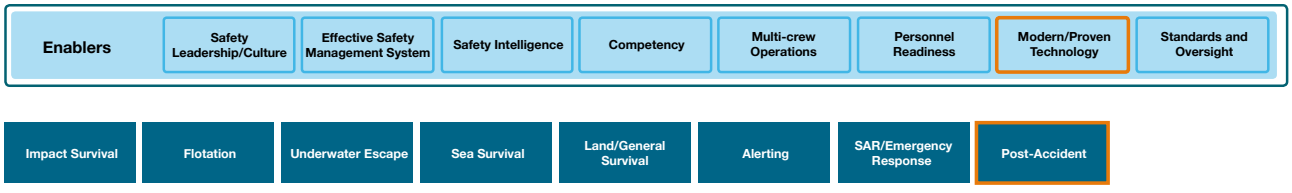
16C.4 Procedures are in place to safeguard the recordings and prevent unauthorized use.

16C.5 Maintenance requirements are in place that periodically check the serviceability of the camera system.

16C.6 The cockpit camera recording system is capable of recording data for a duration that exceeds the total flight time without overwriting data.

Guidance documents

- US National Transportation Safety Board, Safety Recommendation A-00-031:
- Fact sheet – FAAs Response to NTSB's "Most Wanted" Safety Recommendations:
- Transportation Safety Board Of Canada. Air Transportation Safety Investigation A18W0116
- HeliOffshore Safety Performance Model



17. Helicopter flotation gear

17A. Purpose

Ensuring the helicopter floats after a ditching or survivable water impact.

17B. Expectations

Contracted helicopters are fitted with automatically deployed flotation equipment.

17C. Processes and Practices

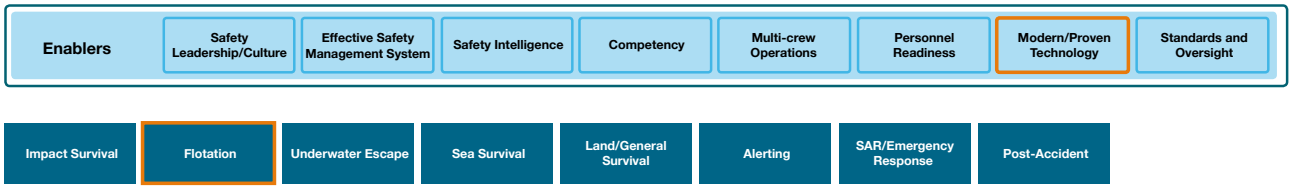
17C.1 Flotation equipment fitted is appropriate to Significant Wave Height (SWH) conditions in the area of operations.

17C.2 Commercial Air Transport (CAT) operations are not conducted with SWH over the ditching certified capability – see 690-2 Aircraft Operations, section 22C.2.

17C.3 Procedures are in place for float arming during offshore flying.

Guidance documents

- ICAO Annex 6
- UK CAA CAP 1145
- HeliOffshore Safety Performance Model



18. Flight following

18A. Purpose

Ensuring timely alerting and location identification to aid SAR services.

18B. Expectations

A satellite flight following, or Automatic Dependent Surveillance – Broadcast (ADS-B) system is installed and serviceable.

18C. Processes and Practices

18C.1 The prime flight following system may be unserviceable for no more than one day. In the event of unserviceability, the following is to apply:

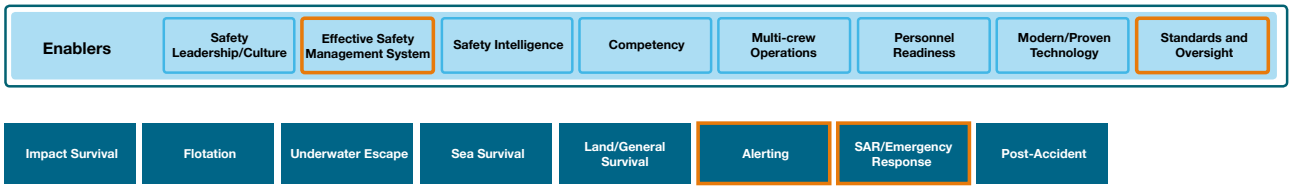
18C.1.1 Continuous communication between flight crew and a ground radio operator is acceptable, provided the procedure is documented, including the obligation of ground operators of keeping up-dated records of aircraft position.

18C.1.2 Where there is more than one period of unserviceability in 30 days the client/customer is consulted.

18C.2 For further information on Flight Following, see Report 690-2, Section 35, Flight following

Guidance documents

- ICAO Annex 6
- BARSOHO Implementation Guidelines v4 20:6
- HeliOffshore Safety Performance Model



19. Passenger seats and harnesses

19A. Purpose

Ensuring occupants survive a crash impact.

19B. Expectations

High-back Passenger Seats are fitted with four-point Upper Torso Restraint (UTR) Harnesses.

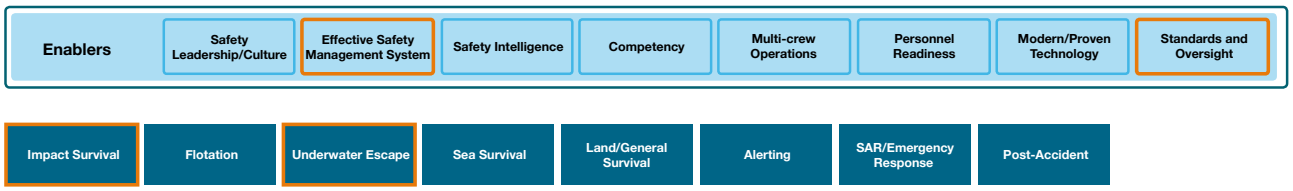
19C. Processes and Practices

19C.1 Seat belts consist of four separate straps.

19C.2 Loop type straps present a snagging hazard and are not to be used.

Guidance documents

- ICAO Annex 6
- HeliOffshore Safety Performance Model



20. Survival kits

20A. Purpose

Ensuring the occupants can survive in the operating environment post an emergency.

20B. Expectations

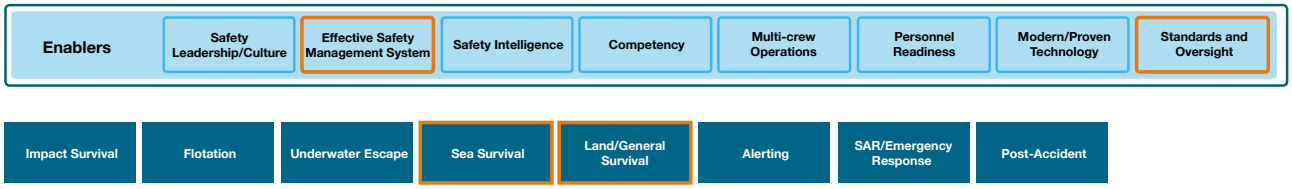
Survival kits are carried.

20C. Processes and Practices

20C.1 Survival kits appropriate to the area of operations are carried.

Guidance documents

- ICAO Annex 6
- HeliOffshore Safety Performance Model



21. High Intensity Strobe Lights

21A. Purpose

Ensuring visibility of the helicopter to all other traffic.

21B. Expectations

High Intensity Strobe Lights (HISL) are fitted.

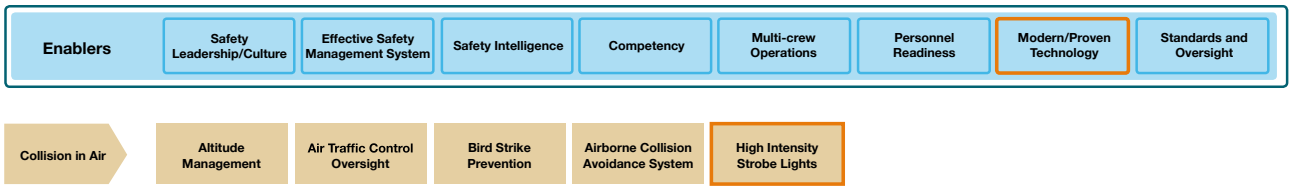
21C. Processes and Practices

21C.1 HISL are installed, if available and certified for the aircraft type, unless operations are in low density air traffic areas and supported by a Risk Assessment.

21C.2 Restrictions are placed on the use of HISL on the ground.

Guidance documents

- ICAO Annex 8
- UK CAA CAP 562, Leaflet 33-20
- HeliOffshore Safety Performance Model



22. Continuous improvement of aircraft operational safety systems

22A. Purpose

Aircraft operators improve aircraft systems to enhance operational safety where possible.

22B. Expectations

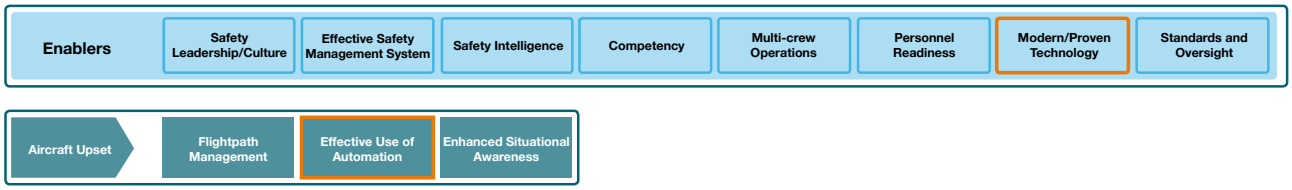
Contracted aircraft are equipped with enhanced operational safety systems, where available from the OEM.

22C. Processes and Practices

22C.1 The operator and the Company collaborate to review the benefits of safety enhancements developed by the OEM and implement as agreed.

Guidance documents

- HeliOffshore Safety Performance Model



International Association of Oil & Gas Producers

APPENDIX A

Guidance for night operations

Appendix A – Guidance for night operations

Introduction

A review of all night offshore aviation accidents was conducted on behalf of the IOGP Aviation Subcommittee, based on data collected between 1990 and 2007. It found that the night offshore accident rate was 8.4 per 100k flight hours compared to the total rate of 1.6 per 100k flight hours.

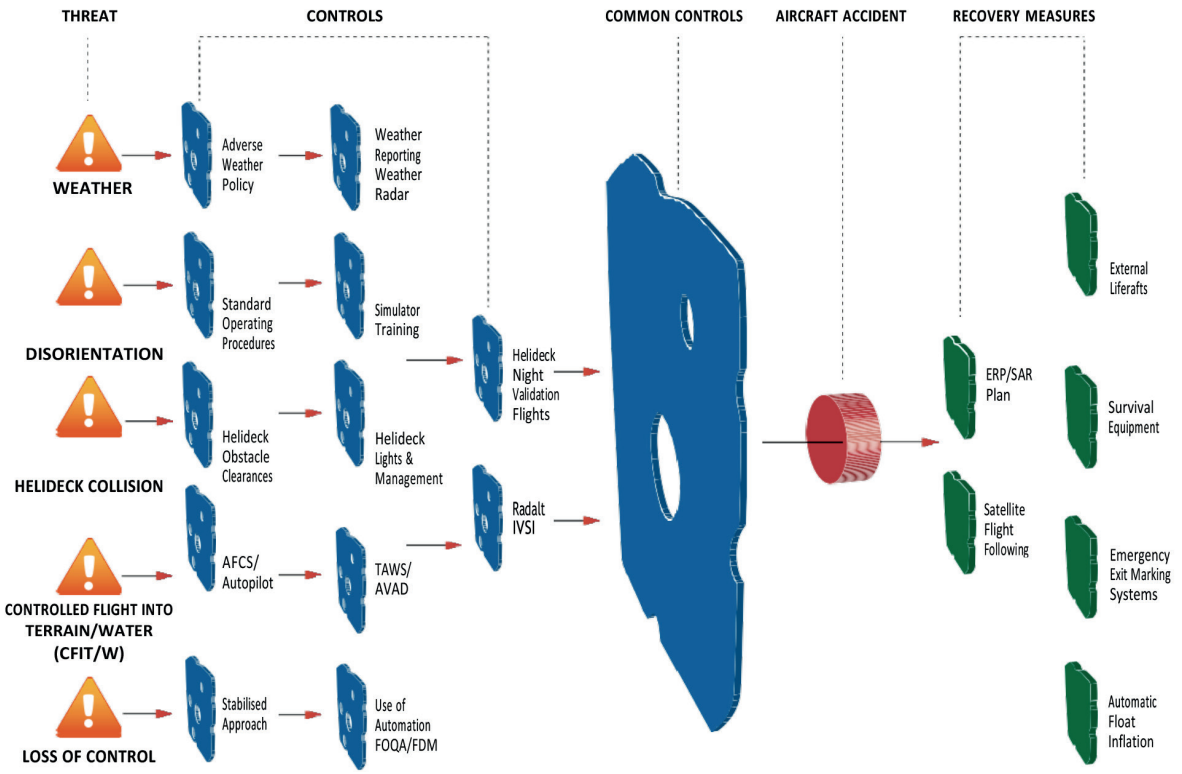
This large disparity prompted the formation of a Night Operations Working Group to study risk reduction measures. The working group produced guidance that was included in IOGP Report 590 – *Aircraft Management Guidelines*. Titled 'Interim guidance on night operations', it provides an overview of the principal controls considered necessary for night operations, with emphasis placed on night offshore helicopter activities, both for routine planned flights and those conducted in the event of an emergency.

With the publication of IOGP Report 690 – *Offshore Helicopter Recommended Practices* in 2022, the document was reviewed, and specific controls were embedded in 690. The remaining guidance is published as an appendix to 690.

The guidance provided is presented in a risk-based format to emphasize the connection between threats, associated controls, and applicable recovery mitigation measures (Figure 1).

In the interest of brevity, common controls are not duplicated for each threat. The guidance is presented at a level that IOGP Members can use, where applicable, in their risk assessment process, thereby establishing clear expectations regarding management of night aviation risk with their contracted aircraft operators.

IOGP Members and air operators are encouraged to risk-assess controls to the level of detail necessary for their individual operations.



1 For reference: the International Civil Aviation Organisation define 'night' as the 'hours between the end of evening civil twilight and the beginning of morning civil twilight or such other period between sunset and sunrise as may be prescribed by the appropriate authority. (Civil twilight ends in the evening when the centre of the sun's disc is 6 degrees below the horizon and begins in the morning when the centre of the sun's disc is 6 degrees below the horizon.)

Figure 1: Risk-based schematic of night operations controls and recovery measures

1. Common controls

Common controls that apply to all threats associated with night operations.

Control 1.1 Pilot night experience

Pilots should have 25 hours nighttime experience before operating as Pilot-in- Command at night. In the case of offshore operations, the 25 hours should be offshore time. They should have both also completed, within the last 12 months, initial or recurrent night proficiency training.

See IOGP Report 690-2, Section 11, Flight crew - Experience and Qualifications.

Control 1.2 Night ground training

Air operators engaged in night offshore activities should conduct annual ground training on night offshore operations for pilots. The following key topics should be covered annual:

- Human factors, disorientation, vertigo, lack of visual cues
- SOPs for stable approach, actions to initiate and execute a go-around
- Night circuit set-up
- Reporting of events

Control 1.3 Emergency Night Flight Policy

An Emergency Night Flight Policy should be established in all circumstances when night flights can reasonably be expected to be requested in response to medical, weather, or other emergencies. IOGP Members, in consultation with the air operator, should develop, using a risk assessment methodology, a documented night medevac/emergency policy.

This should be issued to both parties and have a suitable level of authorization to request such flights. In recognition of their higher risk, night offshore emergency flights should only be requested in genuinely life-threatening situations where the risk of waiting until first light is considered to outweigh the risk of an emergency night flight. Once the cause of the emergency is over, subsequent flights, such as for re-manning, should be conducted under the Non-Emergency Night Flight Policy.

Pilots should be rostered for night stand-by duty in accordance with IOGP Report 690-2 Section 20 - Flight crew Fatigue management – Night standby duty and IOGP Report 690-2 Section 42 - Rostering Flight Crew.

Control 1.4 Non-emergency night flight policy

The scheduling of non-emergency night flights should only be undertaken after a risk assessment by the IOGP Member Company that considers in-particular the effectiveness of the Emergency Response/Search and Rescue (SAR) capability.

Non-emergency night winching should be avoided.

2. Helideck collision – controls

Controls to prevent a helicopter colliding with an offshore platform or ship structure.

Control 2.1 Helideck obstacle clearances

For helidecks requiring a night capability, ICAO, Annex 14, Volume II, *Heliports* [4] should be used in design considerations, construction or major rework for helipad size and obstacle determination.

Practical application of this standard for offshore operations is referenced by CAP 437, *Standards for Helicopter Offshore Landing Areas* [5].

Control 2.2 Helideck lights and management

All new helidecks, or those in for major refurbishment, should have helideck illumination designed to meet the requirements of ICAO, Annex 14, Volume II, Heliports [4] (again CAP 437, *Standards for Helicopter Offshore Landing Areas* [5] details practical implementation). It should be noted that the 'green' perimeter lights are a considerable enhancement to safety.

Deck lighting should be maintained with Helideck Landing Officers (HLOs) and aircrew being diligent to report deficiencies. HLOs and other personnel should be acquainted with, and equipped for, the extra hazards of night operations.

Control 2.3 Helideck night validation flights

Helideck acceptance for new facilities should take into account night lighting.

Dedicated night validation flights, commanded by a training captain and accompanied by an experienced helideck inspector and only other personnel considered essential for the validation, should be conducted to all new-build platforms and when any major change has been made that might affect night illumination. The objective of the validation flight is to confirm suitability of helideck obstacle illumination, platform lighting, and

instrument/visual approaches to the platform in ambient surroundings, with any deficiencies being rectified prior to routine night helicopter operations.

3. Recovery measures

Mitigating defenses in the event of an aircraft accident.

Control 3.1 Emergency response/Search & Rescue (SAR) plans

As a minimum, there should be consideration of the estimated survival times of personnel given environmental conditions and mitigating measures (such as survival suits etc.) and the availability, readiness and effectiveness of available night SAR resources and estimated rescue times.

Where a SAR helicopter capability is provided, they should be operated by trained SAR crews and equipped with a full night hoisting/auto-hover capability.

References

Only the current version of a reference should be used.

[1] IOGP Report 690 Offshore Helicopter Recommended Practices

[2] ICAO Annex 14 to the Convention on International Civil Aviation Volume II Heliports.

[3] ICAO doc 9261 Heliport manual including offshore helidecks

[4] UK CAP 437 Standards for Helicopter Offshore Landing Areas.

[5] Flight Safety Foundation ALAR Briefing Note 7.1.

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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.

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