

**AS332L2,
G-WNSB**

**West of Sumburgh
Airport, Scotland**

23 August 2013

Accident

Investigation Synopsis

At 1717 hrs UTC on 23 August 2013, an AS332 L2 Super Puma helicopter with sixteen passengers and two crew on board crashed in the sea during the approach to land at Sumburgh Airport. Four of the passengers did not survive.

The investigation identified the following causal factors in the accident:

The helicopter's flight instruments were not monitored effectively during the latter stages of the non-precision instrument approach. This allowed the helicopter to enter a critically low energy state, from which recovery was not possible.

Visual references had not been acquired by the Minimum Descent Altitude (MDA) and no effective action was taken to level the helicopter, as required by the operator's procedure for an instrument approach.

The following contributory factors were identified:

The operator's SOP for this type of approach was not clearly defined and the pilots had not developed a shared, unambiguous understanding of how the approach was to be flown.

The operator's SOPs at the time did not optimise the use of the helicopter's automated systems during a Non-Precision Approach.

The decision to fly a 3-axes with V/S mode, decelerating approach in marginal weather conditions did not make optimum use of the helicopter's automated systems and required closer monitoring of the instruments by the crew.

Despite the poorer than forecast weather conditions at Sumburgh Airport, the commander had not altered his expectation of being able to land from a Non-Precision Approach.

Safety Recommendation 2013-021

Safety Recommendation 2013-021

It is recommended that the operator of Sumburgh Airport, Highlands and Islands Airports Limited, provides a water rescue capability, suitable for all tidal conditions, for the area of sea to the west of Sumburgh, appropriate to the hazard and risk, for times when the weather conditions and sea state are conducive to such rescue operations.

Date Safety Recommendation made: 21 October 2013

LATEST RESPONSE

Response received: 17 January 2014

As a result of the HIAL internal investigation and the AAIB Safety Recommendation 2013-21, HIAL commissioned an initial slipway and launch site survey for the provision of a water rescue capability to the west of Sumburgh Airport.

The survey was conducted by independent experts, Royal Haskoning, in November 2013. Following an evaluation of the results, confirming the Toabs Geo slipway as the most suitable launch site to the West of the airport, Royal Haskoning have been instructed to proceed to the next stage, which will consist of a detailed bathymetric and topographic survey of the Toabs Geo slipway, together with an intrusive geotechnical survey of the associated seabed.

HIAL anticipates the plan for the Toabs Geo slipway to be available by the end of Feb 2014 and the required works are targeted for early summer 2014 to take advantage of the weather window in Sumburgh.

Safety Recommendation Status **Closed**

AAIB Assessment **Adequate**

RESPONSE HISTORY

N/A

(SRIS Reference: GB.SIA-2013-0021)

Safety Recommendation 2013-022

Safety Recommendation 2013-022

It is recommended that the Civil Aviation Authority (CAA) review the risks associated with the current water rescue provision for the area of sea to the west of Sumburgh Airport and take appropriate action.

Date Safety Recommendation made: 21 October 2013

LATEST RESPONSE

Response received: 29 November 2013

In the aftermath of the incident, and subsequent AAIB safety recommendation, Aerodrome oversight focussed on remedial work to the to a Slipway to enable HIAL rescue craft to be effectively launched, and the identification of a suitable alternate. HIAL had difficulty repairing the slipway due to some reluctance from contractors, and limited weather windows. The allocated CAA Aerodrome Inspector kept the oversight focussed and they have now completed the remedial work.

Follow-up activities / review are now part of routine oversight, and the AAIB closed its recommendation.

Safety Recommendation Status Closed

AAIB Assessment Adequate

RESPONSE HISTORY

Response received: 29 November 2013

The CAA accepts this Recommendation and is in the process of conducting a review of the risks associated with the current water rescue provision for the area of sea to the West of Sumburgh airport.

Highlands and Islands Airports Ltd. (HIAL), the operator of Sumburgh Airport, is currently reviewing the water rescue provision to the area of sea west of Sumburgh and the CAA has met with the HIAL Corporate Team to discuss their review and any subsequent plans to mitigate the associated risks.

The CAA will closely monitor the progress of the review being undertaken by HIAL and will take any further appropriate action to ensure that the risks associated with the current water rescue provision are being suitably addressed.

AAIB Assessment – Adequate Closed

(SRIS Reference: GB.SIA-2013-0022)

Safety Recommendation 2016-001

Safety Recommendation 2016-001

It is recommended that the European Aviation Safety Agency introduces a requirement for instrument rated pilots to receive initial and recurrent training in instrument scan techniques specific to the type of aircraft being operated.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 10 June 2016

The current provisions in Commission Regulation (EU) No 1178/2011, to ensure that the pilot attains and maintains a suitable level of competency in instrument scanning, include:

- Basic instrument flight exercises for the Private Pilot Licence (PPL) [for example, see Acceptable Means of Compliance AMC1 FCL.210.H (d)(2)(xxxvii) 'Exercise 30: Basic Instrument Flight' (B)(b)];
- Flight Instructor and Flight Examiner competencies [for example, see FCL.930, FCL.935, FCL.1000 and FCL.1010 (a)];
- Controls and checks through the Approved Training Organisation (ATO)'s safety management system [for example, see ORA.GEN.200 (a)(3)];
- Controls and checks through oversight, by the licencing authorities, of the licensing process and training providers (for example, see ARA.GEN.300 and ARA.GEN.350).

Maintenance and checking of the instrument scanning skills is also assured through the existing operator conversion and recurrent training provisions in Part ORO.FC (Organisation Requirements for air Operations - Flight Crew) of Commission Regulation (EU) No 965/2012. This includes operator proficiency checks (OPCs), line flying under supervision (LIFUS), recency, and differences or familiarisation training when required by Annex I (Part-FCL) to Regulation (EU) No 1178/2011, and when changing equipment or procedures requiring additional knowledge on types or variants currently operated.

The LIFUS ensure that the pilot is able to perform a safe and efficient flight, and this requires proficiency in instrument scanning [GM1 ORO.FC.220 (d)]. Effective implementation of the above-mentioned regulations provide suitable mitigation for the risks associated with instrument scanning by pilots.

Safety Recommendation Status **Closed**

AAIB Assessment **Not Adequate**

Action Status

RESPONSE HISTORY

N/A

(SRIS Reference: GB.SIA-2016-0001)

Safety Recommendation 2016-002

Safety Recommendation 2016-002

It is recommended that the European Aviation Safety Agency reviews the existing research into pilot instrument scan techniques, particularly with respect to glass cockpit displays, with a view to addressing shortcomings identified in current instrument scan training methods.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 19 October 2016

In agreement with the recommendation, the Agency has established a working group to review the existing research into pilot instrument scan techniques, particularly with respect to glass cockpit displays.

The objective, is to identify any potential need for revised training in pilot instrument scan techniques that could improve the effectiveness of the crew monitoring functions.

The first phase of the review is expected to be completed in the first quarter 2017.

Safety Recommendation Status Closed

AAIB Assessment Adequate

RESPONSE HISTORY

Response received: 06 June 2016

Glass cockpit displays have been in service for more than twenty five years. The intended benefits of introducing them were to concentrate and integrate the primary flight parameters into a single display area located in the pilot's primary field of view, and by doing so, to ease the scanning of instruments and improve the awareness of basic parameters.

Nevertheless, in order to review the effectiveness of the current instrument scan training methods, EASA intends to launch an analysis of events (accidents and serious incidents) having as the contributing or causal factor any shortcomings, in particular with respect to glass cockpit displays.

AAIB Assessment – Not Adequate Open

(SRIS Reference: GB.SIA-2016-0002)

Safety Recommendation 2016-003

Safety Recommendation 2016-003

It is recommended that the Civil Aviation Authority reviews the methods used by UK North Sea helicopter operators for confirming compliance with their Standard Operating Procedures (SOPs), to ensure they are effective.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 21 November 2019

CAA inspection of Operations manuals was conducted in Q3/2014 after operator review. This was reported upon in CAP 1243 update report to CAP 1145. CAA Specific Objective Check 12 was conducted in 2016 on all UK AOCs operating multi pilot focusing upon monitoring skills.

The objective of this SOC is to assess how effectively each operator has implemented their current pilot monitoring training and checking programmes. Inspectors are required to implement the following checks:

Ascertain from the assigned operator their current documented monitoring material and go- around actions in syllabi within:

- (a) initial type training
- (b) operator conversion course
- © recurrent training
- (d) recurrent checking
- € initial training as a TRI/SFI and SFE/TRE
- (f) recurrent training for instructors
- (g) recurrent checking for examiners
- (h) expanded and abbreviated checklists
- (i) supportive training material

Safety Recommendation Status Closed

AAIB Assessment Adequate

RESPONSE HISTORY

Response received: 26 May 2016

The CAA accepts this recommendation. The CAA will review the methods used by UK North Sea helicopter operators for confirming compliance with their Standard Operating Procedures (SOPs), to ensure these methods are effective. This will be completed by 31 December 2016.

AAIB Assessment – Adequate Closed

(SRIS Reference: GB.SIA-2016-0003)

Safety Recommendation 2016-004

Safety Recommendation 2016-004

It is recommended that the Civil Aviation Authority reviews the Standard Operating Procedures of helicopter operators supporting the UK offshore oil and gas industry, to ensure their procedures for conducting Non-Precision Approaches are sufficiently defined.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 21 November 2019

CAA inspection of Operations manuals was conducted in Q3/2014 after operator review. This was reported upon in CAP 1243 update report to CAP 1145.

Safety Recommendation Status Closed

AAIB Assessment Adequate

RESPONSE HISTORY

Response received: 26 May 2016

The CAA accepts this recommendation and will review the Standard Operating Procedures (SOPs) of helicopter operators supporting the UK offshore oil and gas industry, to ensure their procedures for conducting Non-Precision Approaches are sufficiently defined. This will be completed by 31 December 2016.

AAIB Assessment – Adequate Closed

(SRIS Reference: GB.SIA-2016-0004)

Safety Recommendation 2016-005

Safety Recommendation 2016-005

It is recommended that the European Aviation Safety Agency amends the Certification Specifications for Large Rotorcraft (CS 29) to align them with the Certification Specifications and Acceptable Means of Compliance for Large Aeroplanes (CS 25), with regard to the provision of operational information in Flight Manuals.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 11 June 2021

This safety recommendation will be taken into account in the frame of rulemaking task RMT.0724 for which the Terms of Reference (ToR) (entitled 'Improvement of operating information provided to rotorcraft flight crew') and the Rulemaking Group Composition have been published on 12 March 2021 on the European Union Aviation Safety Agency (EASA) website: <https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0724>

The objective is to improve the operational information provided to the rotorcraft flight crew.

The ToR envisages to reach this objective as follows:

- A gap analysis will be conducted to identify the elements to be improved in the existing acceptable means of compliance (AMC) for the preparation of Rotorcraft Flight Manuals (RFM);
- The results of the gap analysis will be used to identify the points to be addressed by new AMCs, elements that could be relevant for flight crew operating manuals (FCOMs), and elements that cannot be addressed by this rulemaking task;
- A new AMC will be drafted in order to develop guidance for a more comprehensive RFM, with the objective of filling the gaps in the current material;

- This new AMC should ensure that rotorcraft manufacturers will provide more details regarding the procedures to be followed for rotorcraft operations, both for normal and emergency procedures, which take into account the number of crew members, the configuration and the operational environment. As a result, these additional details should help to clarify which elements belong to the airworthiness domain and which elements are related to the operational domain;

- The overall structure and the minimum contents of an FCOM will be defined, allowing type certificate holders (TCHs) to introduce it on a voluntary basis if they decide to publish part of the operational information in this manual;
- The applicability of the proposed material will be assessed, and simplified if necessary, to ensure a proportionate approach;
- An impact assessment will be prepared on the basis of the initial assessment already performed by EASA.

A Notice of Proposed Amendment (NPA) will be prepared and published for public consultation. The NPA will propose amendments of CS-29, CS-27 and, if considered necessary, CS-VLR. The publication is foreseen for Q1 of 2023 according to the European Plan for Aviation Safety (EPAS) 2021-2025.

EASA Status Open

Safety Recommendation Status **Open**

AAIB Assessment **Partially Adequate**

Action Status **Planned Action Ongoing Update Due 01 August 2022**

Feedback rationale

It is acknowledged that the EASA has added the safety issues raised by this Safety Recommendation into Rule Making Task 0724. The AAIB awaits a further update as to the progress toward issuing the Notice of proposed amendment. (EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

Response received: 08 February 2019

This safety recommendation will be taken into account in the frame of rulemaking task RMT.0724 entitled 'Rotorcraft flight crew operating manuals (FCOMs)'.

This RMT is included in the EASA European Plan for Aviation Safety (EPAS) 2019-2023 published on 15th January 2019, with Terms of Reference planned to be issued in 2019Q3.

The objective of this RMT is to improve the operational information provided to rotorcraft flight crew in the aircrew manuals. This could be achieved by standardising the structure and approach used to present operational information in rotorcraft manuals, thereby improving the clarity of this information.

AAIB Assessment – Partially Adequate Open

Response received: 29 April 2016

The Agency supports the intent of this safety recommendation. Options are being considered to launch a rulemaking activity on this subject.

AAIB Assessment – Partially Adequate Open

(SRIS Reference: GB.SIA-2016-0005)

Safety Recommendation 2016-006

Safety Recommendation 2016-006

It is recommended that the European Aviation Safety Agency requires manufacturers of Large Rotorcraft to develop Flight Crew Operating Manuals for public transport types already in service.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 29 April 2016

The Agency encourages since several years manufacturers of larger rotorcraft to provide information on how the rotorcraft should be operated and develop Flight Crew Operating Manuals (FCOM) or similar. EASA welcomed that manufacturers for those aircraft types used by the offshore industry have voluntarily agreed to produce FCOMs. The report states that Airbus Helicopter have already produced an FCOM for the EC225 for oil and gas operations and have committed to do it for the H175 and H160. For the 332L2 a Flight Operation Briefing Note (FOBN) will be released. However, providing that an FCOM is not mandatory for certification of the aircraft (fixed wing or rotorcraft), the Agency does not intend to raise a retroactive mandate for existing rotorcraft but will continue actively encouraging and supporting manufacturers with this initiative.

Safety Recommendation Status Closed

AAIB Assessment Not Adequate

RESPONSE HISTORY

N/A

(SRIS Reference: GB.SIA-2016-0006)

Safety Recommendation 2016-007

Safety Recommendation 2016-007

It is recommended that the Civil Aviation Authority expedites the requirement for companies operating helicopters in support of the UK offshore oil and gas industry to establish a Helicopter Flight Data Monitoring (HFDM) programme.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 21 November 2019

FDM (Helicopter Offshore Monitoring Programme (HOMP)) was in place at the time of the accident as required by customer contract i.a.w the IOGP standards, but not by aviation requirement. As such the CAA did not have formal oversight of the system (although assisted with its development) as there was no specified helicopter standard in place.

However, the CAA supported the introduction of the EASA HOFO Specific Approval, which was introduced in July 2017 (with a requirement for FDM compliance by Jan 19 for FDM).

These legislative requirements are now in place with all offshore operators having formally established FDM programmes.

The Air Operating Rules and associated Acceptable Means of Compliance and Guidance Material effectively provide a specification.

Safety Recommendation Status Closed

AAIB Assessment Adequate

RESPONSE HISTORY

Response received: 26 May 2016

The CAA does not accept this recommendation. Mandating the requirement for companies operating helicopters in support of the UK offshore oil and gas industry to establish a Helicopter Flight Data Monitoring (HFDM) programme would not achieve the intended aim in the absence of a specification. The CAA intends to work with the helicopter operators and other agencies, including EASA, to produce a specification by 30 June 2017.

AAIB Assessment – Adequate Closed

(SRIS Reference: GB.SIA-2016-0007)

Safety Recommendation 2016-008

Safety Recommendation 2016-008

It is recommended that the European Aviation Safety Agency considers establishing a European Operators Flight Data Monitoring forum for helicopter operators to promote and support the development of Helicopter Flight Data Monitoring programmes.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 05 May 2017

The Agency decided to focus firstly on offshore helicopter operators for promoting flight data monitoring (FDM), through paragraph SPA.HOF0.145 in Annex V to Commission Regulation (EU) 965/2012, which requires offshore operators to implement an FDM programme by 01 January 2019 (see Commission Regulation (EU) 2016/1199 of 22 July 2016 amending Regulation (EU) No 965/2012).

Hence, an on-line survey was conducted by the Agency in September and October 2016, which included the topic of creating an FDM forum for the exchange of good practice between offshore operators.

Twenty-six organisations responded, among which sixteen were offshore operators (eleven of which have their principal place of business in an EASA Member State). The survey results showed clear support from offshore operators for the proposal to create such an FDM forum, as well as the need to share experience between experts in the FDM field.

Based on this result and after coordination meetings with CAA-UK and HeliOffshore (safety association), it was decided to open up the next FDM conference organised by the Agency to helicopter operators. This FDM conference will take place in June 2017, as announced on the EASA website.

In addition, the European Operators Flight Data Monitoring (EOFDM) forum has been extended to include participation from helicopter operators: the terms of reference of EOFDM were amended for that purpose. Helicopter operators (starting with offshore operators) will be invited to join the working group C of EOFDM.

Safety Recommendation Status **Closed**

AAIB Assessment **Adequate**

RESPONSE HISTORY

Response received: 29 April 2016

The Agency intends to assess publicly available guidance for helicopters FDM programmes and already established industry initiatives. The expectations of European helicopter operators with regards to FDM will also be surveyed.

The decision to launch a FDM promotion initiative dedicated for European helicopter operators will depend on this assessment.

AAIB Assessment – Partially Adequate Open

(SRIS Reference: GB.SIA-2016-0008)

Safety Recommendation 2016-009

Safety Recommendation 2016-009

It is recommended that the European Aviation Safety Agency collaborates with National Aviation Authorities and helicopter operators to develop and publish guidance material on detection logic for Helicopter Flight Data Monitoring programmes.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 03 March 2021

The United Kingdom Civil Aviation Authority (UK CAA) announced in document CAP1386, issued in 2016, its intention to produce flight data monitoring (FDM) guidance for helicopter offshore operations, in coordination with 'UK helicopter operators and EASA'. In its closing reply to UNKG-2016-007, the CAA UK announced that it aimed at completing such work in 2017. Consequently, the European Union Aviation Safety Agency (EASA) decided to avoid a duplication of effort and to support this UK CAA activity instead of launching a parallel activity to address Safety Recommendation UNKG-2016-009.

However, EASA adopted guidance material (GM) GM2 SPA.HOFO.145 on March 2017, after Safety Recommendation UNKG-2016-009 was issued and this GM contains examples of FDM event definitions for use by helicopter offshore operators. These examples cover all phases of flight and they are taken from Helicopter Flight Data Monitoring (HFDM), Industry Best Practice (version 1.1) published by Global HFDM Steering Group, a helicopter industry association promoting FDM.

In September 2020, HeliOffshore, a helicopter offshore industry association, published Helicopter Flight Data Monitoring (HFDM), Recommended Practice for Oil and Gas Passenger Transport Operations (HeliOffshore document HO-HFDM-RP-v1.0). This industry guidance was developed by a working group including 12 helicopter operators and was reviewed by several authorities, including EASA. The FDM event definitions provided in Appendix 4 of HeliOffshore document HO-HFDM-RP-v1.0 are the same as in GM2 SPA.HOFO.145. Appendix 5 of HeliOffshore document HO-HFDM-RP-v1.0 contains additional examples of safety events to be monitored with FDM.

It is considered that HeliOffshore document HO-HFDM-RP-v1.0 together with GM2 SPA.HOFO.145 fulfils the purpose of Safety Recommendation UNKG-2016-009.

EASA Status: Closed – Agreement

Safety Recommendation Status Closed

AAIB Assessment Adequate

Action Status Planned Action Completed

RESPONSE HISTORY

Response received: 07 February 2017

In June 2016, the Agency discussed the idea of developing guidance material on detection logic for helicopter Flight Data Monitoring (FDM) programmes with the European Authorities coordination group on Flight Data Monitoring (EAFDM). The need for such guidance material was acknowledged by this group. Further to that, in September 2016, the Agency launched an industry survey on FDM programmes addressed to helicopter offshore operators. Among others, the results of this survey indicate that three quarters of respondents identify a need for guidance on detection logic for helicopter FDM programmes.

In the meantime, the Civil Aviation Authority of United Kingdom (CAA UK) announced its intention to produce 'guidance on best practice to support the new European Air Operations Regulations for offshore operations (SPA.HOFO)': refer to CAP1386 (Safety review of offshore public transport helicopter operations in support of the exploitation of oil and gas: Progress report 2016) available on the CAA-UK website. This guidance material is foreseen to include 'new or revised "events" or "measurements" to monitor for adherence to company Standard Operating Procedures'. For this project, the CAA UK plans to work with 'UK helicopter operators and EASA'.

It is considered that this CAA-UK project will satisfy the intent of the safety recommendation, and the Agency is supporting it.

AAIB Assessment – Adequate Closed

Response received: 29 April 2016

The Agency intends to propose to the European Authorities coordination group on flight data monitoring (EAFDM) the topic of detection logic for helicopter FDM programmes.

European helicopter operators will also be contacted in order to determine if they are willing to support it.

AAIB Assessment – Partially Adequate Open

(SRIS Reference: GB.SIA-2016-0009)

Safety Recommendation 2016-010

Safety Recommendation 2016-010

It is recommended that the Civil Aviation Authority, in co-operation with UK offshore helicopter operators, initiates a review of existing Helicopter Flight Data Monitoring programmes to ensure that operating procedures applicable to approaches are compared with those actually achieved during everyday line flights.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 21 November 2019

The HOFO SPA requires operators to establish programmes that use data 'event triggers' covering their range of ground and flight operations. This includes the monitoring and comparison of the approach phase as flown by the fleet. Trends/excursions are identified and addressed through the company management systems.

Ref: SPA.HOFO.145 Flight data monitoring (FDM) system and associated GM

When conducting CAT operations with a helicopter equipped with a flight data recorder, the operator shall establish and maintain a FDM system, as part of its integrated management system, by 1 January 2019.

This requirement refers to guidance documents;

(a) International Civil Aviation Organization (ICAO) Doc 10000 — Manual on Flight Data Analysis Programmes (FDAP);

and

(b) United Kingdom Civil Aviation Authority (UK CAA) CAP 739 — Flight Data Monitoring

A joint industry working group was established to progress improvements to helicopter operators' FDM programmes. The issue of monitoring approaches was prioritised and a European Operators FDM (EOFDM) Working Group A exercise was performed to identify how approaches should ideally be monitored and what FDM parameters would be required. The next step in the process would normally be to undertake an EOFDM Working Group B exercise. This represents a significant undertaking and it has been determined that, in the short-term, a more general approach is to be taken. The first step will be to produce improved Guidance Material (GM) for incorporation in EASA air operating rules (SPA.HOFO.145).

CAA is working with operators to ensure compliance and is conducting performance-based audits in the scope of SPA.HOFO.145.

Safety Recommendation Status Closed

AAIB Assessment Adequate

RESPONSE HISTORY

Response received: 26 May 2016

The CAA accepts this recommendation. The CAA, in co-operation with UK offshore helicopter operators, will initiate a review of existing Helicopter Flight Data Monitoring programmes to ensure that operating procedures applicable to approaches are compared with those actually achieved during everyday line flights. This review will be initiated by 30 September 2016.

AAIB Assessment – Partially Adequate Open

(SRIS Reference: GB.SIA-2016-0010)

Safety Recommendation 2016-011

Safety Recommendation 2016-011

It is recommended that the Civil Aviation Authority expedites the publication of the Helicopter Safety Research Management Committee report into improving warning envelopes and alerts.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 21 November 2019

The final report on the research into alerts was published as CAP 1747 in January 2019.

A joint EUROCAE/RTCA working group was initiated in December 2018, tasked with producing a formal international standard for HTAWS for offshore helicopters. This work is in progress, and the standard is scheduled to be published in Q1 of 2021.

Safety Recommendation Status Closed

AAIB Assessment Adequate

RESPONSE HISTORY

Response received: 19 April 2019

At the time the SR was written the CAA was anticipating publishing a single report covering all of the HTAWS research, i.e. the work on both warning envelopes and alerts. Following engagement with HeliOffshore, the concept of a two-phase approach to implementation was agreed with the work on warning envelopes being 'fast-tracked' to capture the corresponding safety benefits sooner rather than later. CAPs 1519 and 1538 covering the work on warning envelopes were consequently published in April 2017, the former comprising an interim standard for HTAWS. The part of the SR relating to warning envelopes has therefore been fully discharged.

The work on alerts, however, has taken longer than hoped or anticipated due to issues at the research contractor, Cranfield University. All of the experimental work has now been completed (including the cockpit noise measurements added in autumn 2017), however, and the first draft of the final report was recently received on 09 April 2018. The report is presently under review and is expected to be closed out within the next month or two.

The next step in the project will be to produce formal MOPS to supersede the CAP 1519 interim standard. These will include warning envelope improvements omitted from CAP 1519 standard in the interests of expediency, and the results of the Cranfield research into alerts. With the support of EASA, the CAA is now contacting EUROCAE to begin the process of establishing a HTAWS working group activity.

In view of the foregoing, although the letter of the SR may not have been fully discharged in respect of alerts, I believe that the CAA has delivered on the spirit of the SR and has demonstrated its commitment to supporting the introduction of significant improvements to HTAWS.

Along with the fact that the wording of the SR has been superseded by events to some extent, the CAA is minded to propose that the SR be closed with the following response:

Completed. The report on improving HTAWS warning envelopes was published in CAP 1538 in April 2017. An interim standard for Class A HTA WS for offshore helicopter operations was also published in April 2017 in CAP 1519. The interim standard is being used by the HTAWS equipment manufacturers to develop Service Bulletins to modify existing HTAWS, and will form the starting point for the planned work on developing a formal standard via EUROCAE. The experimental work on HTAWS alerts has been completed and the lessons learned will be incorporated in the formal standard.

AAIB Assessment – Adequate Closed

Response received: 26 May 2016

The CAA accepts this recommendation. The CAA-led Helicopter Safety Research Management Committee circulated its work in December 2015; this focussed on improving warning envelopes. The CAA has also commissioned work into improving alerts which is due for completion mid 2016; this report too will be circulated by 31 December 2016. Finally, activities including flight simulator trials will be completed and, as soon as possible, an overall project report published; the target is no later than 31 December 2017.

AAIB Assessment – Partially Adequate Open

(SRIS Reference: GB.SIA-2016-0011)

Safety Recommendation 2016-012

Safety Recommendation 2016-012

It is recommended that the Civil Aviation Authority supports the ongoing development of Helicopter Terrain Awareness Warning Systems, following the publication of the Helicopter Safety Research Management Committee report into improving warning envelopes and alerts.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 21 November 2019

The equipment specification to which this refers is CAP 1519 which was published in April of 2017. This specification is being used by the industry to support a voluntary upgrade of existing HTAWS. The formal standard being produced by EUROCAE/RTCA is required for any regulatory mandate for installation or upgrade of HTAWS.

In relation to the original recommendation, CAA instigated and is a member of the EUROCAE/RTCA working group. The starting point for the formal standard has been the CAA-led work published in CAP 1538 and CAP 1519. The results of the work on alerts published in CAP 1747 is being considered for incorporation in the formal standard.

Safety Recommendation Status Closed

AAIB Assessment Adequate

RESPONSE HISTORY

Response received: 26 May 2016

The CAA accepts this recommendation. The CAA will support the ongoing development of Helicopter Terrain Awareness Warning Systems, following the publication of the Helicopter Safety Research Management Committee report into improving warning envelopes and alerts. This will be achieved by producing a draft equipment specification for Class A HTAWS and making this available to EASA, RTCA, EUROCAE and industry for use/development into a formal specification. It is anticipated the draft equipment specification will be completed by mid 2017.

AAIB Assessment – Partially Adequate Open

(SRIS Reference: GB.SIA-2016-0012)

Safety Recommendation 2016-013

Safety Recommendation 2016-013

It is recommended that the European Aviation Safety Agency requires the installation of Helicopter Terrain Awareness Warning Systems to all helicopters, used in offshore Commercial Air Transport operations, with a Maximum Certificated Take-off Mass (MCTOM) of more than 3,175 kg, or a Maximum Operational Passenger Seating Configuration (MOPSC) of more than nine, manufactured before 31 December 2018.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 28 November 2024

The consideration to extend the existing helicopter terrain avoidance warning systems (HTAWS) requirements for offshore helicopter operations included in point SPA.HOFO.160(c) of Subpart K Helicopter Offshore Operations of Annex V (Part-SPA) to Commission Regulation (EU) No 965/2012 to include those helicopters first issued with an individual Certificate of Airworthiness (CofA) on or before 31 December 2018 is being undertaken in rulemaking task RMT.0708 'Controlled flight into terrain prevention with HTAWS'.

Following a prioritisation exercise, Rulemaking Task RMT.0708 Subtask 1a on Controlled Flight Into Terrain prevention with (HTAWS) for offshore operations, for which a Notice of Proposed Amendment (NPA) was planned in 2025, will be put on hold. This will be reflected in the 2025 edition of the European Plan for Aviation Safety (EPAS).

The European Union Aviation Safety Agency (EASA) will keep the Air Accidents Investigation Branch informed of further progress on this rulemaking task.

EASA Status: Open

Safety Recommendation Status Open

AAIB Assessment Partially Adequate

Action Status Planned Action Ongoing Update Due 28 November 2025

Feedback rationale

The AAIB acknowledges The EASA's response and requests and update on progress on or before 28 November 2025 (EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

Response received: 30 April 2020

Helicopters used in offshore Commercial Air Transport (CAT) operations, with a Maximum Certificated Take-Off Mass (MCTOM) of more than 3175 kg or a Maximum Operational Passenger Seating Capacity (MOPSC) of more than 9, and first issued with an individual Certificate of Airworthiness (CofA) after 31

December 2018, are required to be equipped with a Helicopter Terrain Awareness Warning System (HTAWS) (see SPA.HOFO.160 (c) of Commission Regulation (EU) 2016/1199 amending Commission Regulation (EU) No 965/2012 on air operations).

The European Union Aviation Safety Agency (EASA) is currently considering extending the existing HTAWS requirements for offshore helicopter operations to include those helicopters first issued with an individual CofA on or before 31 December 2018.

This work is being undertaken within the context of EASA rulemaking task RMT.0708 'Controlled flight into terrain prevention with helicopter terrain avoidance warning systems (HTAWS)'.

The associated Terms of Reference were published on 31 July 2019, and the next deliverable, a Notice of Proposed Amendment, is planned to be published in 2021 Q2 [see the European Plan for Aviation Safety (EPAS) 2020-2024].

It should be noted that the actual timelines will depend on the availability of a new HTAWS technical standard, which is currently being developed by the European Organisation for Civil Aviation Equipment (EUROCAE) and the Radio Technical Commission for Aeronautics (RTCA). This is expected to provide flight envelope warnings designed to prevent the loss of control of the helicopter in an offshore environment, as well as terrain awareness and associated warnings. This standard is likely to be the basis for any new regulatory provisions coming from RMT.0708.

AAIB Assessment – Partially Adequate Open

Response received: 20 December 2016

Helicopters used in offshore Commercial Air Transport (CAT) operations, with a Maximum Certificated Take-Off Mass (MCTOM) of more than 3175 kg or a Maximum Operational Passenger Seating Capacity (MOPSC) of more than 9, and first issued with an individual Certificate of Airworthiness (CofA) after 31 December 2018, are required to be equipped with a Helicopter Terrain Awareness Warning System (HTAWS) (see SPA.HOFO.160 (c) of Commission Regulation (EU) 2016/1199 amending Regulation No 965/2012 on air operations).

A Safety Risk Portfolio (SRP) for offshore CAT helicopter operations was established by the European Aviation Safety Agency (EASA) in 2014, in order to identify the associated key risk areas and safety issues (see Annual Safety Review 2014 and 2016 published on the EASA web site).

As part of the development of the SRP, EASA has conducted a Preliminary Impact Assessment (PIA) to determine and prioritise any actions that the Agency should take to address the related safety issues. One of the candidate actions is Controlled Flight into Terrain (CFIT) prevention with HTAWS.

In response to the September 2016 PIA findings, the Agency intends to introduce a new Rulemaking Task (RMT) into its Rulemaking Programme (RMP) for 2017-2021, in order to consider extending the existing HTAWS requirements for offshore helicopter operations to include those helicopters first issued with an individual Certificate of Airworthiness (CofA) on or before 31 December 2018 (ie retrofit).

It should be noted that research programmes have been taking place to improve HTAWS software in order to increase the time between the first caution or warning and impact without generating more false warnings for offshore operations. Further research may still be needed, and an improved European Technical Standard Order (ETSO) be published, before mandating retrofit for the existing offshore helicopter fleet.

The Agency's Rulemaking Programme for 2017-2021 is expected to be published in the fourth quarter of 2016, after consultation with the EASA Member States' Advisory Body (MAB) and the Stakeholders Advisory Body (SAB).

In the meantime, safety promotion material produced by the European Helicopter Safety Team (EHST) already addresses some of the root causes of CFIT accidents. For example, 'HE9 Automation and flight path management' for Instrument Flight Rules (IFR) flights (published in September 2015) and 'Helicopter Flight Instructor Manual' for unplanned flying in Instrument Meteorological Conditions (IMC) during Visual Flight Rules (VFR) flights (published in June 2015).

AAIB Assessment – Partially Adequate Open

Response received: 29 April 2016

The European Aviation Safety Agency is currently conducting a preliminary impact assessment on the use of Helicopter Terrain Awareness Warning Systems (HTAWS) to mitigate the risk of Controlled Flight Into Terrain (CFIT) in helicopter operations. This will include an evaluation of the recommendation to require the installation of HTAWS for all helicopters used in offshore Commercial Air Transport operations, with a Maximum Certificated Take-off Mass (MCTOM) of more than 3,175 kg, or a Maximum Operational Passenger Seating Configuration (MOPSC) of more than nine, manufactured before 31 December 2018.

The assessment is expected to be completed by mid-2016.

AAIB Assessment – Partially Adequate Open

Response received: 29 April 2016

The European Aviation Safety Agency is currently conducting a preliminary impact assessment on the use of Helicopter Terrain Awareness Warning Systems (HTAWS) to mitigate the risk of Controlled Flight Into Terrain (CFIT) in helicopter operations. This will include an evaluation of the recommendation to require the installation of HTAWS for all helicopters used in offshore Commercial Air Transport operations, with a Maximum Certificated Take-off Mass (MCTOM) of more than 3,175 kg, or a Maximum Operational Passenger Seating Configuration (MOPSC) of more than nine, manufactured before 31 December 2018.

The assessment is expected to be completed by mid-2016.

AAIB Assessment – Partially Adequate Open

(SRIS Reference: GB.SIA-2016-0013)

Safety Recommendation 2016-014

Safety Recommendation 2016-014

It is recommended that the European Aviation Safety Agency introduces a requirement for the installation of cockpit image recorders, in aircraft required to be equipped with Flight Data and Cockpit Voice Recorders, to capture flight crew actions within the cockpit environment.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 07 June 2024

In 2018, the International Civil Aviation Organization (ICAO) adopted a new standard on 'Flight crew-machine interface recordings' (FCMIR) in Annex 6 Part I (International Commercial Air Transport — Aeroplanes) Chapter 6, section 6.3.4, and the corresponding Appendix 8) with an applicability to aeroplanes of a maximum take-off mass of over 27 000 kg and for which the application for type certification was submitted on or after 1st January 2023. No standard similar to this one has been introduced to helicopters in Annex 6 Part III (International Operations — Helicopters).

This standard requires the aeroplane to be equipped with a crash-protected flight recorder which shall record the information displayed to the flight crew from electronic displays, as well as the operation of switches and selectors by the flight crew as defined in Appendix 8. Compliance with this standard may be achieved by means of an airborne image recorder, or by other means capable of meeting the objective of the standard. The use of image recorders in the cockpit was not required due to privacy concerns.

ICAO Doc 10101, published in 2021, provides guidance material for the implementation of appropriate provisions for FCMIRs as required by Annex 6 Part I, Chapter 6, 6.3.4 and provides references to the protective measures needed for these recordings.

The European Union Aviation Safety Agency (EASA) will continue to follow the developments in ICAO and will assess the need for transposition of such standards into EU requirements via its rulemaking process. EASA does not intend to propose a rule mandating a FCMIR for helicopters if no corresponding ICAO standard exists, however an assessment of the introduction of these recorders on aeroplanes will be done through Rule Making Task .0392, Subtask 2.

Safety Recommendation Status Closed

AAIB Assessment Not Adequate

Action Status No Planned Actions

Feedback rationale

EASA have stated that it does not intend to propose a rule mandating Image Recorders for helicopters if no corresponding ICAO standard exists. EASA has also stated that an assessment of the introduction of image recorders will be done through Rule Making Task .0392, Subtask 2. This sub-task deals with EASA alignment with ICAO SARPs on the function to erase CVR and AIR recordings. It does not deal with the introduction of Image Recorders on helicopters. (EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

Response received: 06 June 2016

A consultation with Contracting States, conducted by the International Civil Aviation Organization (ICAO) in 2009 and 2010, revealed that most States had not implemented any legislation to protect the contents of cockpit image recorders from improper use, and that many States were concerned that safety data collection might be adversely impacted by the misuse of recordings from cockpit image recorders.

The Agency shared this concern. The risk of misuse of images is considered significant when the recorder is capturing large parts of the bodies of the flight crew members or a view of their faces. On the other hand, a recorder primarily designed to capture a view of the information displayed to the flight crew members is considered to be more acceptable.

This is why the International Civil Aviation Organization (ICAO) adopted, in March 2016, new standards for Annex 6 Part I on the protection of recordings from flight recorders, including cockpit image recorders. In addition, the Flight Recorder Specific Working Group of ICAO is currently considering standards for the recording of images in the cockpit that are less susceptible to misuse. It is expected that this working group will present their proposals on this topic before the end of 2016. The Agency is actively supporting this ICAO task.

Once ICAO has introduced standards prescribing the carriage of cockpit image recorders, the Agency will consider initiating a rulemaking activity on the subject.

AAIB Assessment – Partially Adequate Open

(SRIS Reference: GB.SIA-2016-0014)

Safety Recommendation 2016-015

Safety Recommendation 2016-015

It is recommended that the European Aviation Safety Agency introduces a requirement to install image recorders, capable of monitoring the cabin environment, in aircraft required to be equipped with Flight Data Recorder and Cockpit Voice Recorders.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 06 June 2016

The scope of the recommendation includes rotorcraft operating other than offshore, as well as all fixed wing aircraft operations. EASA considers that there is an appreciably lower likelihood of gaining valuable data from cabin image recorders in incidents and accidents involving such aircraft categories

and types of operation. A cabin image recorder will bring limited information on the conduct of the flight and would be a useful investigation tool in only a small subset of accident scenarios. The expected benefit of cabin image recorders for the future reduction of fatalities and injuries in aircraft accidents is considered to be much lower than the benefit brought by flight recorders capturing activities related to the conduct of the flight (ie the flight data recorder or the cockpit voice recorder).

While recording images of the cabin might bring limited benefits to the investigation of accidents similar to that of the subject report, it could also represent a serious breach into passengers' privacy. In addition, any leakage or misuse of such image recordings could have a significant negative effect.

The risk of misuse of images is considered significant when the recorder is capturing large parts of the bodies of the cabin members or a view of their faces.

For Aircrew, the International Civil Aviation Organization (ICAO) adopted, in March 2016, new standards for Annex 6 Part I on the protection of recordings from flight recorders, including cockpit image recorders. However, this protection is not applicable to cabin personnel.

Therefore, the Agency has concluded not to require the installation of cabin image recorders.

Safety Recommendation Status Closed

AAIB Assessment Not Adequate

RESPONSE HISTORY

N/A

(SRIS Reference: GB.SIA-2016-0015)

Safety Recommendation 2016-016

Safety Recommendation 2016-016

It is recommended that the European Aviation Safety Agency instigates a research programme to provide realistic data to better support regulations relating to evacuation and survivability of occupants in commercial helicopters operating offshore. This programme should better quantify the characteristics of helicopter underwater evacuation and include conditions representative of actual offshore operations and passenger demographics.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 28 November 2024

An initial review into the nature of the research that could be envisaged to provide realistic data to better support regulations relating to evacuation and survivability of occupants in helicopters operating offshore was commissioned by the European Union Aviation Safety Agency (EASA) in 2020.

The results of this first Helicopter Underwater Escape research project provided a comprehensive review of currently available information on underwater escape, identified shortfalls, and recommended further work to rectify this lack of information.

The final report is published on the EASA website: <https://www.easa.europa.eu/en/research-projects/helicopter-underwater-evacuation>.

Two of the highest-priority recommendations identified in the initial review were investigated in a subsequent research project: evaluation of the forces required to jettison push-out underwater emergency exits and underwater escape from a passenger cabin with a full complement of passengers.

The final report of this additional research is published on the EASA website:

<https://www.easa.europa.eu/en/research-projects/helicopter-underwater-escape-2>

The main objective of the second research project was to review the related rules, requirements, Acceptable Means of Compliance (AMC) and guidance material and propose areas for future rulemaking. The research activity concluded that the current Certification Specifications and Regulations are adequate and, however, provided recommendations for updates to AMC material.

As a result, EASA has decided to further review these recommendations, which will now be expedited by re-opening rulemaking task RMT.0120 or, alternatively, as a complement to another ongoing helicopter RMT.

Following the successful completion of two successive research programmes, EASA considers that these activities adequately address the intent of the safety recommendation and the results obtained will now be further followed up within EASA's continuous rulemaking programme aimed at improving helicopter certification standards.

EASA Status: Closed – Agreement

Safety Recommendation Status **Closed**

AAIB Assessment **Partially Adequate**

Action Status **Planned Action Completed**

Feedback rationale

The AAIB acknowledges The EASA's response. The report referenced in The EASA response summarised existing research and proposed seven new research projects of which The EASA completed two projects, the forces required to jettison push-out underwater emergency exits and underwater escape from the passenger cabin with a full compliment of passengers. The results are summarised in <https://www.easa.europa.eu/en/research-projects/helicopter-underwater-escape-2>.

The five remaining recommended projects, passenger training fidelity and frequency, brace position, energy absorbing seats, harness release and underwater vision have not been undertaken. (EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

Response received: 29 April 2016

EASA agrees that generation of safety data as suggested by this recommendation, and the related discussion text in the accident report, could provide valuable input to future rulemaking decisions related to underwater evacuation of rotorcraft. EASA will perform an initial review into the nature of the research, that could be envisaged.

AAIB Assessment – Partially Adequate Open

(SRIS Reference: GB.SIA-2016-0016)

Safety Recommendation 2016-017

Safety Recommendation 2016-017

It is recommended that, where technically feasible, the regulatory changes introduced by the European Aviation Safety Agency Rulemaking Task RMT.120 are applied retrospectively by the EASA to helicopters currently used in offshore operations.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 07 November 2022

Response will not fit within the character limit on CMS - please see the attachment to the response.

Safety Recommendation Status Closed

AAIB Assessment Adequate

Action Status Planned Action Completed

RESPONSE HISTORY

Response received: 25 April 2022

Following a public consultation under Notice of Proposed Amendment (NPA) 2020-16 (rulemaking task RMT.0120), the European Union Aviation Safety Agency (EASA) published on 8 February 2022 Opinion 01/2022:

<https://www.easa.europa.eu/document-library/opinions/opinion-no-012022>

This Opinion proposes to amend Regulation (EU) 2015/640 on additional airworthiness specifications for a given type of operations, and in particular its Annex I (Part-26), to include the following requirements for helicopters that are operated over water for extended periods of time:

— Black/yellow marking for operating handles for all helicopters

In a capsized helicopter, passengers and flight crew will be able to identify more easily the operating handle for an emergency exit whilst underwater and in the dark.

— Black/yellow marking for emergency controls used underwater for all helicopters

Emergency controls will be marked with the method of operation, and will be marked with yellow and black stripes if they may have to be operated underwater.

— Remote life raft deployment (cockpit, cabin, from water) for large CS-29 helicopters only (ditching approval only)

It will be required for life rafts to reliably deploy in any foreseeable floating attitude, including capsize, from either inside the ditched helicopter, or if it has capsized, then survivors can deploy the life raft from outside the helicopter whilst in the water.

— Substantiated sea conditions for capsize resistance in the rotorcraft flight manual (RFM)

The flight crew and rotorcraft operators will be made aware of the sea conditions substantiated relating to the certification obtained with ditching or emergency flotation design provisions.

— The effort required to open each emergency 'egress route' shall not be exceptional for CS-27 Category A and CS-29 helicopters only

In a capsized helicopter, the emergency exits will be provided for passengers and flight crew to enable rapid escape, i.e. exceptional

AAIB Assessment – Partially Adequate Open

Response received: 03 March 2021

In the frame of rulemaking task RMT.0120, EASA published a second Notice of Proposed Amendment (NPA): NPA 2020-16 on 23.12.2020. <https://www.easa.europa.eu/document-library/notices-of-proposed/amendment/npa-2020-16>

An assessment has been conducted of the appropriateness of requiring design improvements to existing helicopter designs and the in-service helicopter fleet based on the certification specifications (CS) introduced in CS-27 and CS-29 at Amendment 5.

Based on that assessment, this NPA proposes to amend Annex I (Part/26) to Commission Regulation (EU) 2015/640 and corresponding CS-26 to require the following design improvements for helicopters that are operated for extended time periods over water:

- Easier identification of the operating mechanisms for emergency ditching underwater exits;
- Provision of remote life raft deployment;
- Substantiated sea conditions for capsizing resistance in the rotorcraft flight manual (RFM);
- Verified easy opening force for emergency ditching underwater exits;
- Life raft attachment means of a sufficient length to prevent damage to the life raft;
- Easy access to life preservers;
- Automatic illumination of emergency ditching underwater exits;
- Improved ratio of passengers to emergency ditching exits;
- Verified robustness of existing emergency flotation systems to resist damage in the event of a water impact;
- Automatic deployment and arming (if required) of the emergency flotation system.

Kindly note that this list is not exhaustive and not all of these improvements would be applied to small non-Category A helicopters or helicopters that are not required to be certified with ditching provisions (i.e. emergency flotation system only).

The proposed regulatory changes will improve the safety of offshore helicopter operations and provide a pragmatic balance of the associated minimal economic impact, and with no environmental or social impact.

EASA Status: Open

AAIB Assessment – Partially Adequate Open

Response received: 31 August 2018

The Terms of Reference for Rulemaking Task RMT.0120 ('Helicopter ditching and water impact occupant survivability') includes the task of considering retroactive requirements for already certified helicopters.

A proposed amendment of Certification Specification CS-27 and CS-29 has been publically consulted through the first Notice of Proposed Amendment, (NPA) 2016-01, which was published on 23/03/2016. CS-27 and CS-29 were amended on 25 June 2018 through Executive Director Decision 2018/007 /R.

A second NPA will be published to propose retrospective requirements through an amendment of Commission Regulation (EU) No 2015/640, Additional airworthiness specifications for operations (Part-26). The current target for publication is 4Q2018 (per the European Plan for Aviation Safety (EPAS) 2018-2022).

AAIB Assessment – Partially Adequate Open

Response received: 29 April 2016

The Terms of Reference for Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability') includes the task of considering retroactive requirements for already certified helicopters. Following EASA NPA 2016-01 (dedicated to Certification Specifications, published 23/03/2016), the application of the requirement to existing helicopters will be considered in a second NPA.

Based on this second NPA consultation, the Agency will develop an Opinion for a Part-26 regulation.

AAIB Assessment – Partially Adequate Open

(SRIS Reference: GB.SIA-2016-0017)

Safety Recommendation 2016-018

Safety Recommendation 2016-018

It is recommended that the European Aviation Safety Agency amends the Certification Specifications for rotorcraft (CS 27 and 29) to require the installation of systems for the automatic arming and activation of flotation equipment. The amended requirements should also be applied retrospectively to helicopters currently used in offshore operations.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 07 November 2022

In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), the first Notice of Proposed Amendment (NPA) (2016-01) was published on 23/03/2016 and proposed an amendment of certification specifications (CS-27 and CS-29) addressing this safety recommendation.

CS-27 and CS-29 have been amended on 14 June 2018 by ED Decision 2018/007/R. These amendments include the following new specifications:

CS 27.801(c):

'(c) An emergency flotation system that is stowed in a deflated condition during normal flight must:

- (1) be designed such that the effects of a water impact (i.e. crash) on the emergency flotation system are minimised.
- (2) have a means of automatic deployment following water entry.'

CS 29.801(c):

'(c) An emergency flotation system that is stowed in a deflated condition during normal flight must:

- (1) be designed such that the effects of a water impact (i.e. crash) on the emergency flotation system are minimised.
- (2) have a means of automatic deployment following water entry. Automatic deployment must not rely on any pilot action during flight.'

CS-27 Category A rotorcraft must also comply with CS 29.801(c), as indicated by an amendment of Appendix C to CS-27.

This means that, although CS 27 Cat. A and CS-29 rotorcraft are required to be equipped with an emergency flotation system (EFS) that includes both a means of automatic arming and a means of automatic deployment, small CS-27 rotorcraft are only required to be equipped with an emergency flotation system that has a means of automatic deployment. This difference has been adopted by EASA following the comments received on NPA 2016-01, explaining that such requirement would not be proportionate and would add significant complexity to system design for small CS-27 rotorcraft.

Following a public consultation under a second NPA 2020-16 (rulemaking task RMT.0120), EASA published on 8 February 2022 Opinion 01/2022, recommending to the European Commission an amendment of Regulation (EU) 2015/640 on additional airworthiness specifications for a given type of operations, to include new requirements for helicopters that are operated over water for extended periods of time, which are consistent with the above mentioned CS-27 and CS-29 specifications:

<https://www.easa.europa.eu/document-library/opinions/opinion-no-012022>

Based on this Opinion, Commission Implementing Regulation (EU) 2022/1254 of 19 July 2022 amends Regulation (EU) 2015/640 to include the following new requirements in its Annex I (Part-26):

26.435 Automatic deployment of an emergency flotation system

(a) Operators of small helicopters that are required, in accordance with point CAT.IDE.H.320(a) of Annex IV to Regulation (EU) No 965/2012, to be designed for landing on water or certified for ditching, shall ensure that if an emergency flotation system is installed and is stowed during flight, then it shall automatically deploy as a result of entry into water.

(b) Operators of small category A helicopters and large helicopters that are required, in accordance with point CAT. IDE.H.320(a) of Annex IV to Regulation (EU) No 965/2012, to be designed for landing on water or certified for ditching, shall ensure that if an emergency flotation system is installed and is stowed during flight, then it shall automatically deploy as a result of entry into water and shall not rely on any pilot action during flight.

Point 26.435(a) applies from 9 August 2024.

Point 26.435(b) applies from 9 August 2026.

<https://www.easa.europa.eu/en/document-library/regulations/commission-implementing-regulation-eu-20221254>

Finally, EASA issued ED Decision 2022/019/R of 8 September 2022 (CS-26 Issue 4), providing the means to comply with the above Part-26 requirements.

<https://www.easa.europa.eu/en/document-library/agency-decisions/ed-decision-2022019r>

EASA Status: Closed – Partial Agreement

Safety Recommendation Status **Closed**

AAIB Assessment **Partially Adequate**

Action Status **Planned Action Completed**

Feedback rationale

The AAIB recognises the steps taken by EASA to meet the intent of the Safety Recommendation and the changes applicable to CS 27 Cat A and CS29 rotorcraft. The AAIB also acknowledges the limitations of making similar changes to small CS27 rotorcraft.

(EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

Response received: 25 April 2022

In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), the first Notice of Proposed Amendment (NPA) (2016-01) was published on 23/03/2016 and proposed an amendment of certification specifications (CS-27 and CS-29) addressing this safety recommendation.

CS-27 and CS-29 have been amended on 14 June 2018 by ED Decision 2018/007/R.

These amendments include the following new specifications:

CS 27.801(c):

'(c) An emergency flotation system that is stowed in a deflated condition during normal flight must:

(1) be designed such that the effects of a water impact (i.e. crash) on the emergency flotation system are minimised.

(2) have a means of automatic deployment following water entry.'

CS 29.801(c):

'(c) An emergency flotation system that is stowed in a deflated condition during normal flight must:

(1) be designed such that the effects of a water impact (i.e. crash) on the emergency flotation system are minimised.

(2) have a means of automatic deployment following water entry. Automatic deployment must not rely on any pilot action during flight.'

CS-27 Category A rotorcraft must also comply with CS 29.801(c), as indicated by an amendment of Appendix C to CS-27.

This means that, although CS 27 Cat. A and CS-29 rotorcraft are required to be equipped with an emergency flotation system (EFS) that includes both a means of automatic arming and a means of automatic deployment, small CS-27 rotorcraft are only required to be equipped with an emergency flotation system that has a means of automatic deployment. This difference has been adopted by EASA following the comments received on NPA 2016-01, explaining that such requirement would not be proportionate and would add significant complexity to system design for small CS-27 rotorcraft.

Following a public consultation under a second NPA 2020-16 (rulemaking task RMT.0120), EASA published on 8 February 2022 Opinion 01/2022:

<https://www.easa.europa.eu/document-library/opinions/opinion-no-012022>

This Opinion proposes to amend Regulation (EU) 2015/640 on additional airworthiness specifications for a given type of operations, and in particular its Annex I (Part-26), to include the following requirements for helicopters that are operated over water for extended periods of time:

— Automatic deployment of the EFS for all helicopters

In the event of entry into water (ditching or water impact), the EFS must automatically deploy.

— Automatic arming of the EFS for CS-27 Category A and CS-29 helicopters

If the system that automatically deploys the EFS is disarmed during flight (to prevent a potential safety issue from the inadvertent deployment of the EFS), then the rearming of the EFS automatic deployment system must not rely upon any pilot action. This is only applicable to helicopters where the inadvertent deployment of the EFS could cause a safety issue, or where safe flight with the EFS deployed has not been demonstrated for the full envelope.

This response will be updated once the EASA Opinion is processed by the European Commission, leading to the publication of a Regulation amending Regulation (EU) 2015/640.

AAIB Assessment – Partially Adequate Open

Response received: 03 March 2021

In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), the first Notice of Proposed Amendment (NPA (2016-01) was published on 23 March 2016 and proposed an amendment of certification specifications CS-27 and CS/29 to address this safety recommendation.

CS-27 and CS-29 were amended on 25 June 2018 by ED Decision 2018/007/R.

These amendments include the following new specifications:

CS 27.801(c):

'(c) An emergency flotation system that is stowed in a deflated condition during normal flight must:

(1) be designed such that the effects of a water impact (i.e. crash) on the emergency flotation system are minimised.

(2) have a means of automatic deployment following water entry.'

CS 29.801(c):

'(c) An emergency flotation system that is stowed in a deflated condition during normal flight must:

(1) be designed such that the effects of a water impact (i.e. crash) on the emergency flotation system are minimised.

(2) have a means of automatic deployment following water entry. Automatic deployment must not rely on any pilot action during flight.'

CS-27 Category A rotorcraft must also comply with CS 29.801(c), as indicated by an amendment of

Appendix C to CS-27.

This means that, although CS 27 Cat. A and CS-29 rotorcraft are required to be equipped with an emergency flotation system that includes both a means of automatic arming and a means of automatic deployment, small CS-27 rotorcraft are only required to be equipped with an emergency flotation system that has a means of automatic deployment. This difference has been adopted by European Union Aviation Safety Agency (EASA) following the comments received on NPA 2016-01, explaining that such requirement would not be proportionate and would add significant complexity to system design for small CS-27 rotorcraft.

The retrospective application of these specifications to small Category A helicopters and large helicopters (required to be designed for landing on water or certified for ditching) is proposed under NPA 2020-16 which was published on 23 December 2020.

The NPA proposes a new point 26.435 on 'Automatic deployment of an emergency flotation system' in Annex I (Part-26) to Commission Regulation (EU) No 2015/640. A corresponding specification CS 26.435 as well as guidance material GM 26.435 are also proposed to be introduced in CS-26.

EASA Status: Open

AAIB Assessment – Partially Adequate Open

Response received: 31 August 2018

In the frame of Rulemaking Task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), the first Notice of Proposed Amendment, NPA (2016-01), was published on 23/03/2016 proposing an amendment of certification specifications (CS-27 and CS-29) to address this safety recommendation.

CS-27 and CS-29 have been amended on 25 June 2018 by Executive Director Decision 2018/007 /R. These amendments include the following new specifications:

CS 27.801©:

'© An emergency flotation system that is stowed in a deflated condition during normal flight must:

(1) be designed such that the effects of a water impact (i.e. crash) on the emergency flotation system are minimised.

(2) have a means of automatic deployment following water entry.'

CS 29.801©:

'© An emergency flotation system that is stowed in a deflated condition during normal flight must:

(1) be designed such that the effects of a water impact (i.e. crash) on the emergency flotation system are minimised.

(2) have a means of automatic deployment following water entry. Automatic deployment must not rely on any pilot action during flight.'

CS-27 Category A rotorcraft must also comply with CS 29.801©, as indicated by an amendment of Appendix C to CS-27.

This means that, although CS 27 Cat. A and CS-29 rotorcraft are required to be equipped with an emergency flotation system that includes both a means of automatic arming and a means of automatic deployment, small CS-27 rotorcraft are only required to be equipped with an emergency flotation system that has a means of automatic deployment. This difference has been adopted by EASA following the comments received on NPA 2016-01, explaining that such requirement would not be proportionate and would add significant complexity to system design for small CS-27 rotorcraft.

The retrospective application of the requirements to existing helicopters, through an amendment of Commission Regulation (EU) No 2015/640, Additional airworthiness specifications for operations (Part-26) will be considered in a second NPA. The current target for publication is 4Q2018 (per the European Plan for Aviation Safety (EPAS) 2018-2022).

AAIB Assessment – Partially Adequate Open

Response received: 10 June 2016

In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), Notice of Proposed Amendment (NPA) 2016-01 was published on 23/03/2016. The proposal includes provisions for requirements meeting the intent of this safety recommendation.

The proposed CS 27.801(c) and CS 29.801(c) read: 'Emergency flotation systems that are stowed in a deflated condition during normal flight must:

(...)

(2) if operable within a restricted flight envelope, have an automatic means of arming, disarming and rearming, to enable the system to function, except in flight conditions in which float deployment may be hazardous to the rotorcraft; otherwise the system shall be armed at all times in flight; and

(3) have a means of automatic deployment following water entry.'

The application of the requirements to existing helicopters will be considered in a second NPA.

AAIB Assessment – Partially Adequate Open

Response received: 29 April 2016

In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), NPA 2016-01 was published on 23/03/2016. The NPA 2016-01 proposal includes a provision for a requirement meeting the intent of this safety recommendation.

CS 29.801(c): 'Emergency flotation systems that are stowed in a deflated condition during normal flight must:

(...)

(2) if operable within a restricted flight envelope, have an automatic means of arming, disarming and rearming, to enable the system to function, except in flight conditions in which float deployment may be hazardous to the rotorcraft; otherwise the system shall be armed at all times in flight; and (3) have a means of automatic deployment following water entry.'

The application of the requirement to existing helicopters will be considered in a second NPA.

AAIB Assessment – Partially Adequate Open

(SRIS Reference: GB.SIA-2016-0018)

Safety Recommendation 2016-019

Safety Recommendation 2016-019

It is recommended that the European Aviation Safety Agency amends the Certification Specifications for Large Rotorcraft (CS 29), certified for offshore operation, to require the provision of a side-floating capability for a helicopter in the event of impact with water or capsized after ditching. This should also be applied retrospectively to helicopters currently used in offshore operations.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 20 September 2019

EASA will publish a call of tenders for a research study on enhanced emergency flotation systems. The main purpose of this study would be to investigate the technical feasibility of providing a portion of the fuselage above the waterline by utilising flotation units mounted high up on the helicopter fuselage.

Before regulatory action can be considered, the magnitude and nature of the associated technical challenges that would be introduced need to be understood.

The subject study is therefore in order that EASA may make confident decisions as to whether regulatory action is justified and proportionate.

The call for tenders is planned to be published during the summer of this year.

Safety Recommendation Status Open

AAIB Assessment Partially Adequate

RESPONSE HISTORY

Response received: 08 October 2018

In the frame of Rulemaking Task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), Notice of Proposed Amendment, NPA (2016-01), was published on 23/03/2016 proposing new certification specifications and acceptable means of compliance (CS- 29) to address this safety recommendation.

The NPA proposed the following:

-CS 29.801(i): 'The rotorcraft design must incorporate appropriate post-capsized survivability features to enable all passenger cabin occupants to safely egress the rotorcraft, taking into account the human breath hold capability';

-AMC 29.801, paragraph (c)(8): 'One method of meeting the post-capsized survivability provisions of CS 29.801(i) is to create a post-capsized rotorcraft floating attitude which will create an air pocket in the passenger cabin. This can be achieved by means of additional buoyancy.'

After consideration of the comments received during the public consultation of the NPA, EASA decided to withdraw these new provisions from the amendment of CS-29. The reason is that the design solutions, necessary to comply with the proposed specifications, are not yet technically mature. EASA will continue to monitor any research and development activities conducted by the industry in this domain.

For the same reason, EASA does not plan to propose retrospective requirements to equip already certified rotorcraft.

EASA Status - Final

AAIB Assessment – Not Adequate Closed

Response received: 29 April 2016

In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), NPA 2016-01 was published on 23/03/2016. The NPA 2016-01 proposal includes a provision for a requirement meeting the intent of this safety recommendation in term of survivability objective, although it is not prescriptive to a particular design solution.

The proposed CS 29.801(i) is: 'The rotorcraft design must incorporate appropriate post-capsize survivability features to enable all passenger cabin occupants to safely egress the rotorcraft, taking into account the human breath hold capability'.

AMC 29.801(c)(8) provides that 'One method of meeting the post-capsize survivability provisions of CS 29.801(i) is to create a post-capsize rotorcraft floating attitude which will create an air pocket in the passenger cabin. This can be achieved by means of additional buoyancy.

An air pocket will remove the time pressure for escape. Passengers will not need to immediately escape through a ditching emergency exit. They can utilise the air in the pocket for continued survival during the time needed for all to make their escape'.

The application of the requirement to existing helicopters will be considered in a second NPA.

AAIB Assessment – Not Adequate Open

(SRIS Reference: GB.SIA-2016-0019)

Safety Recommendation 2016-020

Safety Recommendation 2016-020

It is recommended that the European Aviation Safety Agency amends the Certification Specifications for Large Rotorcraft (CS 29), certified for offshore operation, to ensure that any approved cabin seating layouts are designed such that, in an emergency (assuming all the exits are available), each exit need only be used by a maximum of two passengers seated directly adjacent to it.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 31 August 2018

Final response:

In the frame of Rulemaking Task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), Notice of Proposed Amendment, NPA (2016-01), was published on 23/03/2016 proposing new certification specifications (CS-29) to address this safety recommendation.

CS-29 has been amended on 25 June 2018 by Executive Director Decision 2018/007 /R.

This amendment includes the following new specifications:

- CS 29.807(d): 'Underwater emergency exits for passengers. If certification with ditching provisions is requested by the applicant, underwater emergency exits must be provided in accordance with the following requirements and must be proven by test, demonstration, or analysis to provide for rapid escape with the rotorcraft in the upright floating position or capsized.

(1) One underwater emergency exit in each side of the rotorcraft, meeting at least the dimensions of a Type IV exit for each unit (or part of a unit) of four passenger seats. However, the passenger seat to-exit ratio may be increased for exits large enough to permit the simultaneous egress of two passengers side by side.'

- CS 29.813(d): 'If certification with ditching provisions is requested:

(1) passenger seats must be located in relation to the underwater emergency exits provided in accordance with CS 29.807(d)(1) in a way to best facilitate escape with the rotorcraft capsized and the cabin flooded; and

(2) means must be provided to assist cross-cabin escape when capsized.'

In addition the proposed associated Acceptable Means of Compliance (AMC) material further points out that the objective of this latter rule is that no passenger is in a worse position than the second person to egress through an exit.

Safety Recommendation Status Closed

AAIB Assessment Adequate

RESPONSE HISTORY

Response received: 19 December 2016

In agreement with the recommendation, the Agency has published in the frame of Rulemaking task RMT.0120

'Helicopter ditching and water impact occupant survivability', Notice of Proposed Amendment (NPA) 2016-01

on 23/03/2016.

The NPA 2016-01 proposes specifications meeting the intent of the safety recommendation:

- The proposed CS 29.807(d)(1) specifies one ditching emergency exit in each side of the rotorcraft, meeting at least the dimensions of a Type IV exit for each unit (or part of a unit) of four passenger seats. However, the

passenger seat-to-exit ratio may be increased for exits large enough to permit the simultaneous 'egress of two

passengers side by side'.

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- The proposed CS 29.813(d)(1) specifies that passenger seats are located relative to these exits in a way to

best facilitate escape.

In addition, the proposed associated Acceptable Means of Compliance (AMC) indicates that the objective of

this latter rule is that no passenger is in a worse position than the second person to egress through an exit.

AAIB Assessment – Partially Adequate Closed

Response received: 29 April 2016

In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), NPA 2016-01 was published on 23/03/2016. The NPA 2016-01 proposal includes a provision for a requirement meeting the intent of this safety recommendation. The proposed CS 29.807(d)(1) requires 'one ditching emergency exit in each side of the rotorcraft, meeting at least the dimensions of a Type IV exit for each unit (or part of a unit) of four passenger seats. However, the passenger seat-to-exit ratio may be increased for exits large enough to permit the simultaneous egress of two passengers side by side'.

AAIB Assessment – Not Adequate Open

(SRIS Reference: GB.SIA-2016-0020)

Safety Recommendation 2016-021

Safety Recommendation 2016-021

It is recommended that the European Aviation Safety Agency amends the Certification Specifications for Large Rotorcraft (CS 29), certified for commercial offshore operations, to include minimum size limitations for all removable exits, to allow for the successful egress of a 95th percentile-sized offshore worker wearing the maximum recommended level of survival clothing and equipment.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 31 August 2018

In the frame of Rulemaking Task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), Notice of Proposed Amendment, NPA 2016-01, was published on 23/03/2016, proposing new certification specifications (CS-29) to address this safety recommendation.

CS-29 has been amended on 25 June 2018 by Executive Director Decision 2018/007 /R. CS 29.807(d) requires underwater emergency exits to meet at least the dimensions of a Type IV exit.

As explained in the NPA Appendix B, item 36 on size of occupants, studies have shown that the dimensions of a Type IV exit would be sufficient to allow safe evacuation by all offshore workers whilst wearing survival clothing and equipment.

Safety Recommendation Status Closed

AAIB Assessment Adequate

RESPONSE HISTORY

Response received: 19 October 2016

In agreement with the recommendation, the Agency published in the frame of Rulemaking Task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), Notice of Proposed Amendment (NPA) 2016-01 on 23/03/2016. The proposal includes a provision for a requirement to meet the intent of this safety recommendation. The proposed Certification Specifications for Large Rotorcraft CS 29.807(d) requires the provision of "ditching emergency exits" meeting at least the dimensions of a Type IV exit, optimised for underwater use, for each unit of four passengers, and that passenger seats be installed in the cabin such that access to these exits is optimised (i.e. no passenger need wait for more than one other passenger to egress before making their own escape). As explained in the NPA Appendix B, item 36 on size of occupants, studies have shown that the dimensions of a Type IV exit would be sufficient to allow successful egress of a 95th percentile-sized offshore worker wearing the maximum recommended level of survival clothing and equipment.

It is to be noted that the proposal to expand the CS 29 requirement for "ditching emergency exits", as explained above, requires such an increase in number and size of these exits that in future designs there will be neither room nor need for additional removable exits, such as push-out windows.

The associated Executive Director (ED) Decision is expected to be published in the first quarter 2017.

AAIB Assessment – Partially Adequate Open

Response received: 29 April 2016

In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), NPA 2016-01 was published on 23/03/2016. The NPA 2016-01 proposal includes a provision for a requirement to meet the intent of this safety recommendation. The proposed CS 29.807(d) requires ditching emergency exits to meet at least the dimensions of a Type IV exit.

As explained in the NPA Appendix B, item 36 on size of occupants, studies have shown that the dimensions of a Type IV exit would be sufficient to allow safe evacuation by offshore workers wearing survival clothing and equipment.

AAIB Assessment – Not Adequate Open

(SRIS Reference: GB.SIA-2016-0021)

Safety Recommendation 2016-022

Safety Recommendation 2016-022

It is recommended that the European Aviation Safety Agency amends the Certification Specifications for Large Rotorcraft (CS 29), certified for use in commercial offshore operations, to require a common standard for emergency exit opening mechanisms, such that the exit may be removed readily using one hand and in a continuous movement.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 31 August 2021

Paragraph (c) of Certification Specification CS 29.809 'Emergency exit arrangement' requires that the means of opening each emergency exit is simple and obvious and may not require exceptional effort.

In the frame of Rulemaking Task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), Notice of Proposed Amendment, NPA 2016-01, was published for public consultation on 23/03/2016, and proposed new Acceptable Means of Compliance (AMC) provisions to clarify this specification.

CS-29 has been amended on 25 June 2018 by Executive Director Decision 2018/007 /R. It includes a new AMC 29.809, which stipulates the following in paragraph (b)(3):

'The means to open an underwater emergency exit should be simple and obvious and should not require any exceptional effort. Designs with any of the following characteristics (non-exhaustive list) are considered to be non-compliant:

- (i) more than one hand is needed to operate the exit itself (use of the handhold may occupy the other hand);
- (ii) any part of the opening means, e.g. an operating handle or control, is located remotely from the exit such that it would be outside of a person's direct vision when looking directly at the exit, or that the person should move away from the immediate vicinity of the exit in order to reach it; and
- (iii) the exit does not meet the opening effort limitations set by FAA AC 29.809.'

Safety Recommendation Status **Closed**

AAIB Assessment **Partially Adequate**

RESPONSE HISTORY

Response received: 29 April 2016

Paragraph (c) of CS 29.809 'Emergency exit arrangement' requires that the means of opening each emergency exit is simple and obvious and may not require exceptional effort.

In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), NPA 2016-01 was published for public comment on 23/03/2016. The NPA 2016-01 proposal includes a provision text in AMC 29.809 stating that a design, where it is needed to use more than one hand to operate the exit, would not be considered compliant with CS 29.809(c).

AAIB Assessment – Partially Adequate Open

(SRIS Reference: GB.SIA-2016-0022)

Safety Recommendation 2016-023

Safety Recommendation 2016-023

It is recommended that the European Aviation Safety Agency amends the operational requirements for commercial offshore helicopters to require the provision of compressed air emergency breathing systems for all passengers and crew.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 20 December 2016

This recommendation has been addressed within the framework of the European Aviation Safety Agency (EASA) rulemaking tasks RMT.0409 and RMT.0410 'Helicopter Offshore Operations', which have concluded with the publication of Commission Regulation (EU) 2016/1199, amending Commission Regulation (EU) No 965/2012 on air operations, and an Executive Director (ED) Decision containing the associated Acceptable Means of Compliance (AMC) and Guidance Material (GM).

Commission Regulation (EU) 2016/1199, published in the Official Journal of the European Union on 22 July 2016, introduces new implementing rules for Specific Approvals (SPA) for Helicopter Offshore Operations (HOFO) in Annex V (Part-SPA) of the air operations regulation. According to SPA.HOFO.165 (c), all persons on board shall carry and be instructed in the use of emergency breathing systems (EBS).

ED Decision 2016/022/R 'Helicopter offshore operations', published on the EASA web site on 7 October 2016, includes AMC1 SPA.HOFO.165 (c) which states that the EBS of SPA.HOFO.165(c) should be an EBS system capable of rapid underwater deployment. This AMC describes the goal to be achieved which is to enable underwater breathing following a rapid submerging of the cockpit and cabin, rather than specifying the only acceptable technical means, such as compressed air EBS as mentioned in the recommendation, because technological advancement may allow other EBS types to be accepted.

Lastly, the proper use of EBS should be presented and demonstrated to passengers by audio-visual electronic means (video, DVD or similar), or the passengers should be informed about them by a crew member prior to boarding the aircraft (see subparagraph (c) of AMC1 SPA.HOFO.110(b)(2) of ED Decision 2016/022/R).

Safety Recommendation Status Closed

AAIB Assessment Not Adequate

RESPONSE HISTORY

Response received: 29 April 2016

Proposed amendments to Commission Regulation (EU) No 965/2012 are currently being considered during the adoption process of European Aviation Safety Agency (EASA) opinion 04/2015 'Helicopter Offshore Operations'. This EASA opinion proposes new implementing rules for Specific

Approvals (SPA) for Helicopter Offshore Operations (HOFO), including a new rule which will require all persons on board to carry and be instructed in the use of emergency breathing systems.

The resulting Commission Regulation on amending Commission Regulation (EU) No 965/2012 and the related EASA Executive Director Decision containing acceptable means of compliance and guidance are expected to be published by September 2016.

AAIB Assessment – Partially Adequate Open

(SRIS Reference: GB.SIA-2016-0023)

Safety Recommendation 2016-024

Safety Recommendation 2016-024

It is recommended that the European Aviation Safety Agency (EASA) amends the operational requirements for commercial offshore helicopter operations, to require operators to demonstrate that all passengers and crew travelling offshore on their helicopters have undertaken helicopter underwater escape training at an approved training facility, to a minimum standard defined by the EASA.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 11 June 2021

The part of the recommendation related to Helicopter Underwater Escape Training (HUET) for the crew of Helicopter Offshore Operations (HOFO) has been addressed within the framework of the European Union Aviation Safety Agency (EASA) rulemaking tasks RMT.0409 and RMT.0410 'Helicopter Offshore Operations', which concluded with the publication of Commission Regulation (EU) 2016/1199, amending Commission Regulation (EU) No 965/2012 on air operations, and Executive Director (ED) Decision 2016/022/R containing the associated Acceptable Means of Compliance (AMC) and Guidance Material (GM) [See (a)(3) of SPA.HOFO.170 and (b) of AMC1 SPA.HOFO.170(a)].

EASA has also considered the recommendation to define the minimum HUET standards. The detail included in the training syllabus for flight crew will depend on the type of offshore operation being performed, the environment in which the operation takes place, the type of helicopter operated, and the type of emergency and survival equipment required. Therefore, EASA considers that operators should define their own standards which should be tailored to suit their own operations and fleet. This is in line with the safety management system principles which require the operator to identify hazards, perform associated risk assessments and implement mitigation to achieve an acceptable level of safety (see ORO.GEN.200 of Commission Regulation (EU) No 965/2012). The competent authority should oversee this as part of its assessment of the organisation to ensure continued competence to conduct safe operations in compliance with the applicable requirements (see ARO.GEN.300 of Commission Regulation (EU) No 965/2012).

Regarding the part of the recommendation to require operators to demonstrate that HOFO passengers have undertaken HUET, these passengers are typically employed by offshore oil and gas extraction organisations who have the obligation, for example under occupational health and safety legislation, to provide this sort of training for the safety of their employees. Such HUET is typically embedded in the specific contractual arrangements between the operator and the offshore undertaking. The standard of training facilities and course content is generally regulated by national oil and gas industry bodies. Indeed, passenger training is currently undertaken following industry standards established by organisations such as OPITO UK [Offshore Petroleum Industry Training Organization (UK)], NOGEP (Netherlands Oil and Gas Exploration and Production Association), and the Norwegian Oil and Gas Association.

Instead of amending Subpart K (HOFO) of Commission Regulation (EU) No 965/2012, to require operators to demonstrate that all passengers have undertaken HUET, EASA has taken other actions to facilitate passenger escape from a survivable water impact scenario, for example:

- New requirements on the provision of emergency breathing systems that are deployable underwater have been introduced in Commission Regulation (EU) No 965/2012. According to sub-paragraph (c) of SPA.HOFO.165, all persons on board shall carry, and be instructed in the use of, emergency breathing systems.
- Additional initial airworthiness requirements have been established, such as:
 - Mandatory automatic activation of helicopter flotation equipment,
 - Automatic deployment of the flotation equipment must not rely on any pilot action during flight for CS-27 Cat A and CS-29 types,
 - Requirements for remote life raft deployment,
 - Additional requirements on the number, size and operability of emergency exits to be used underwater,
 - New cabin design requirements to ensure that all passengers are allocated near an exit or window which is suitable and easily accessible, and no passenger is worse than 2nd in line to escape the helicopter through a window, in order for each to be able to escape within their breathing time.

EASA Status: Closed – Partial agreement

Safety Recommendation Status **Closed**

AAIB Assessment **Partially Adequate**

Action Status **Planned Action Completed**

Feedback rationale

The AAIB recognises the steps taken but EASA to improve the survivability of water impact through the adoption of Commission Regulations (EU) No 2016/1199 and No 965/2012 together with the additional airworthiness standard in CS 27 and CS 29. The AAIB also notes the EASA's view that the standard of HUET training undertaken by flight crew is the responsibility of helicopter operator and that HUET training of passengers is generally regulated by oil and gas industry bodies. (EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

Response received: 20 December 2016

This recommendation has been partially addressed within the framework of the European Aviation Safety Agency (EASA) rulemaking tasks RMT.0409 and RMT.0410 'Helicopter Offshore Operations', which have concluded with the publication of Commission Regulation (EU) 2016/1199, amending Commission Regulation (EU) No 965/2012 on air operations, and an Executive Director (ED) Decision containing the associated Acceptable Means of Compliance (AMC) and Guidance Material (GM).

Commission Regulation (EU) 2016/1199, published in the Official Journal of the European Union on 22 July 2016, includes new implementing rules for Specific Approvals (SPA) for Helicopter Offshore Operations (HOFO) in Annex V (Part-SPA) of the air operations regulation. According to SPA.HOFO.170 (a)(3), the operator shall establish a flight crew training and checking programme that each flight crew member shall complete successfully. Such programme shall be adapted to the offshore environment and include normal, abnormal and emergency procedures, crew resource management, water entry and sea survival training.

ED Decision 2016/022/R 'Helicopter offshore operations', published on the EASA web site on 7 October 2016, provides AMC to SPA.HOFO.170. Water entry and sea survival training, including operation of all associated safety equipment, should be an element of the recurrent training, as described in AMC1 ORO.FC.230(a)(2)(iii)(F) (see subparagraph (b) of AMC1 SPA.HOFO.170 (a)).

EASA has considered the recommendation to define the minimum helicopter underwater escape training standards. The detail included in the training syllabus for flight crew will depend on the type of offshore operation being performed, the environment in which the operation takes place, the type of helicopter operated, and the type of emergency and survival equipment required. Therefore, EASA considers that operators should define their own standards which should be tailored to suit their own operations and fleet. This is in line with the Safety Management System principles which require the operator to identify hazards, perform associated risk assessments and implement mitigation to achieve an acceptable level of safety (see Organisation Requirements for Air Operations ORO.GEN.200 of Commission Regulation (EU) No 965/2012). The competent authority should oversee this as part of its assessment of the organisation to ensure continued competence to conduct safe operations in compliance with the applicable requirements (see Authority Requirements for Air Operations ARO.GEN.300 of Commission Regulation (EU) No 965/2012).

The part of the recommendation on underwater escape training for passengers travelling in commercial offshore helicopter operations will be further evaluated by the Agency. Any subsequent action by the Agency will depend on the results of the evaluation.

AAIB Assessment – Partially Adequate Open

Response received: 10 June 2016

EASA has considered the recommendation to define the minimum helicopter underwater escape training standards. The detail included in the training syllabus for flight crew will depend on the type of offshore operation being performed, the environment in which the operation takes place, the type of helicopter operated, and the type of emergency and survival equipment required. Therefore, EASA considers that operators should define their own standards which should be tailored to suit their own operations and fleet. This is in line with the Management System principles which require the operator to identify hazards, perform associated risk assessments and implement mitigation to achieve an acceptable level of safety (see ORO.GEN.200). The competent authority should oversee this as part of its assessment of the organisation to ensure continued competence to conduct safe operations in compliance with the applicable requirements (see ARO.GEN.300).

The part of the recommendation on underwater escape training for passengers travelling in commercial offshore helicopter operations will be further evaluated by the Agency. Any subsequent action by the Agency will depend on the results of the evaluation.

AAIB Assessment – Not Adequate Open

(SRIS Reference: GB.SIA-2016-0024)

Safety Recommendation 2016-025

Safety Recommendation 2016-025

It is recommended that the European Aviation Safety Agency amends the design requirements for helicopters to ensure that where liferafts are required to be fitted, they can be deployed readily from a fuselage floating in any attitude.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 31 August 2016

In the frame of Rulemaking Task RMT.0120' ('Helicopter ditching and water impact occupant survivability'), Notice of Proposed Amendment, NPA 2016-01, was published for public consultation on 23/03/2016, and proposed new certification specifications to address this safety recommendation.

Certification Specifications CS-27 and CS-29 have been amended on 25 June 2018 by Executive Director Decision 2018/007 /R.

These amendments include specifications in CS 27.1415(b)(1) and CS 29.1415(b)(1) which read as follows:

'Required life raft(s) must be remotely deployable for use in an emergency. Remote controls capable of deploying the life raft(s) must be located within easy reach of the flight crew, occupants of the passenger cabin and survivors in the water, with the rotorcraft in the upright floating or capsized position. It must be substantiated that life raft(s) sufficient to accommodate all rotorcraft occupants, without exceeding the rated capacity of any life raft, can be reliably deployed with the rotorcraft in any reasonably foreseeable floating attitude, including capsized, and in the sea conditions chosen for demonstrating compliance with CS 27.801(e)/CS 29.801(e).'

Paragraph (b)(1)(iii) of the corresponding AMC 27.1415 and AMC 29.1415, provides further guidance as follows:

'Reasonably foreseeable floating attitudes are considered to be, as a minimum, upright, with and without loss of the critical emergency flotation system (EFS) compartment, and capsized, also with and without loss of the critical EFS compartment. Consideration should also be given towards maximising, where practicable, the likelihood of life raft deployment for other cases of EFS damage.'

Safety Recommendation Status Closed

AAIB Assessment Adequate

RESPONSE HISTORY

Response received: 29 April 2016

In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), NPA 2016-01 was published on 23/03/2016.

The NPA 2016-01 proposal includes provisions in CS 27.1415(c) and CS 29.1415(b)(2) requiring that life rafts must be remotely deployable for ready use in an emergency. Remote controls capable of deploying the life rafts must be located within easy reach of the flight crew, occupants of the passenger cabin and survivors in the water. It must be demonstrated that life rafts sufficient to accommodate all rotorcraft occupants, without exceeding the rated capacity of any life raft, can be reliably deployed with the rotorcraft in any reasonably foreseeable floating attitude, including capsized, and in the sea conditions chosen for showing compliance with CS 27.801(e)/CS 29.801(e).

AAIB Assessment – Partially Adequate Open

(SRIS Reference: GB.SIA-2016-0025)

Safety Recommendation 2016-026

Safety Recommendation 2016-026

It is recommended that the European Aviation Safety Agency requires that, for existing helicopters used in offshore operations, a means of deploying each liferaft is available above the waterline, whether the helicopter is floating upright or inverted.

Date Safety Recommendation made: 17 March 2016

LATEST RESPONSE

Response received: 07 November 2022

In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), the first Notice of Proposed Amendment (NPA) 2016-01 was published for public comment on 23 March 2016 and proposed new certification specifications (CS-27 and CS-29) addressing this safety recommendation.

CS-27 and CS-29 have then been amended on 14 June 2018 by ED Decision 2018/007/R (CS-27 Amendment 5 and CS-29 Amendment 5).

These amendments include specifications in CS 27.1415(b)(1) and CS 29.1415(b)(1) which read as follows:

'Required life raft(s) must be remotely deployable for use in an emergency. Remote controls capable of deploying the life raft(s) must be located within easy reach of the flight crew, occupants of the passenger cabin and survivors in the water, with the rotorcraft in the upright floating or capsized position. (...).'

Paragraph (b)(1)(vi) of AMC 27.1415 and AMC 29.1415 provides the following acceptable means of compliance for life raft activation:

'The following should be provided for each life raft:

(...)

(C)tertiary activation: manual activation control(s) accessible to a person in the water, with the rotorcraft in all foreseeable floating attitudes, including capsized.'

Following a public consultation under a second NPA 2020-16 (rulemaking task RMT.0120), EASA published on 8 February 2022 Opinion 01/2022:

<https://www.easa.europa.eu/document-library/opinions/opinion-no-012022>

This Opinion proposed to amend Regulation (EU) 2015/640 on additional airworthiness specifications for a given type of operations, to include new requirements for helicopters that are operated over water for extended periods of time.

Based on this Opinion, Commission Implementing Regulation (EU) 2022/1254 of 19 July 2022 amends Regulation (EU) 2015/640 to include the following new requirements in its Annex I (Part-26):

26.420 Emergency equipment for flight over water

(...)

(c) Operators of large helicopters that are required by point SPA.HOFO.165(d) of Annex V to Regulation (EU) No 965/2012 to have one or more life rafts installed, shall ensure that the life raft(s):

(1) is (are) remotely deployable, with the means to deploy the life raft(s), located within easy reach of the flight crew, the occupants of the passenger cabin and any survivors in the water, with the helicopter in an upright floating or capsized position;
(2) can be reliably deployed with the helicopter in any reasonably foreseeable floating attitude, including capsize, and in the substantiated sea conditions for capsize resistance.

Points 26.420(c) applies from 9 August 2024.

<https://www.easa.europa.eu/en/document-library/regulations/commission-implementing-regulation-eu-20221254>

Finally, EASA issued ED Decision 2022/019/R of 8 September 2022 (CS-26 Issue 4), providing the means to comply with the above Part-26 requirements.

<https://www.easa.europa.eu/en/document-library/agency-decisions/ed-decision-2022019r>

EASA Status: Closed – Partial Agreement

Safety Recommendation Status **Closed**

AAIB Assessment **Partially Adequate**

Action Status **Planned Action Completed**

Feedback rationale

The AAIB recognises the steps taken by EASA to meet the intent of the Safety Recommendation and the changes applicable to CS 27 and CS29 rotorcraft. The AAIB also acknowledges the retrospective introduction of actions to meet the intent of the Safety Recommendation to rotorcraft certified under earlier revisions of CS29. (EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

Response received: 25 April 2022

In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), the first Notice of Proposed Amendment (NPA) 2016-01 was published for public comment on 23/03/2016 and proposed new certification specifications (CS-27 and CS-29) addressing this safety recommendation. CS-27 and CS-29 have been amended on 14 June 2018 by ED Decision 2018/007/R.

These amendments include specifications in CS 27.1415(b)(1) and CS 29.1415(b)(1) which read as follows: 'Required life raft(s) must be remotely deployable for use in an emergency. Remote controls capable of deploying the life raft(s) must be located within easy reach of the flight crew, occupants of the passenger cabin and survivors in the water, with the rotorcraft in the upright floating or capsized position. (...).'

Paragraph (b)(1)(vi) of AMC 27.1415 and AMC 29.1415 provides the following acceptable means of compliance for life raft activation:

'The following should be provided for each life raft:

(...)

(C)tertiary activation: manual activation control(s) accessible to a person in the water, with the rotorcraft in all foreseeable floating attitudes, including capsized.'

Following a public consultation under a second NPA 2020-16 (rulemaking task RMT.0120), EASA published on 8 February 2022 Opinion 01/2022:

<https://www.easa.europa.eu/document-library/opinions/opinion-no-012022>

This Opinion proposes to amend Regulation (EU) 2015/640 on additional airworthiness specifications for a given type of operations, and in particular its Annex I (Part-26), to include the following requirements for helicopters that are operated over water for extended periods of time:

— Remote life raft deployment (cockpit, cabin, from water) for large CS-29 helicopters only (ditching approval only)

It will be required for life rafts to reliably deploy in any foreseeable floating attitude, including capsized, from either inside the ditched helicopter, or if it has capsized, then survivors can deploy the life raft from outside the helicopter whilst in the water.

This response will be updated once the EASA Opinion is processed by the European Commission, leading to the publication of a Regulation amending Regulation (EU) 2015/640.

AAIB Assessment – Partially Adequate Open

Response received: 03 March 2021

In the frame of rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), the first Notice of Proposed Amendment (NPA) 2016-01 was published for public consultation on 23 March 2016 and proposed new certification specifications (under CS-27 and CS-29) to address this safety recommendation.

CS-27 and CS-29 were amended on 25 June 2018 by Executive Director (ED) Decision 2018/007/R.

These amendments include specifications in CS 27.1415(b)(1) and CS 29.1415(b)(1) which read as follows:

'Required life raft(s) must be remotely deployable for use in an emergency. Remote controls capable of deploying the life raft(s) must be located within easy reach of the flight crew, occupants of the passenger cabin and survivors in the water, with the rotorcraft in the upright floating or capsized position. (...).'

Paragraph (b)(1)(vi) of acceptable means of compliance AMC 27.1415 and AMC 29.1415 provide the following acceptable means of compliance for life raft activation:

'The following should be provided for each life raft:

(...)

(C)tertiary activation: manual activation control(s) accessible to a person in the water, with the rotorcraft in all foreseeable floating attitudes, including capsized.'

The retrospective application of these specifications to existing helicopters (but limited to large helicopters that are required to have an installed life raft) is proposed under NPA 2020-16 which was published on 23 December 2020.

The NPA proposes a new point 26.420(b) on 'Flight over water emergency equipment' in Annex I (Part-26) to Commission Regulation (EU) No 2015/640. A corresponding specification CS 26.420(b) is also proposed to be introduced in CS-26.

EASA Status: Open

AAIB Assessment – Partially Adequate Open

Response received: 31 October 2018

In the frame of Rulemaking Task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), the first Notice of Proposed Amendment, NPA 2016-01, was published for public consultation on 23/03/2016, and proposed new certification specifications (CS-27 and CS-29) to address this safety recommendation.

Certification Specifications CS-27 and CS-29 have been amended on 25 June 2018 by Executive Director Decision 2018/007/R.

These amendments include specifications in CS 27.1415(b)(1) and CS 29.1415(b)(1) which read as follows:

'Required life raft(s) must be remotely deployable for use in an emergency. Remote controls capable of deploying the life raft(s) must be located within easy reach of the flight crew, occupants of the passenger cabin and survivors in the water, with the rotorcraft in the upright floating or capsized position. (...).'

Paragraph (b)(1)(vi) of AMC 27.1415 and AMC 29.1415 provides the following acceptable means of compliance for life raft activation:

'The following should be provided for each life raft:

(...)

(C) tertiary activation: manual activation control(s) accessible to a person in the water, with the rotorcraft in all foreseeable floating attitudes, including capsized.'

The retrospective application of the requirements to existing helicopters, through an amendment of Regulation (EU) No 2015/640, Additional airworthiness specifications for operations (Part-26), will be considered in a second NPA. The current target for publication is 4Q2018 (per the European Plan for Aviation Safety (EPAS) 2018-2022).

AAIB Assessment – Partially Adequate Open

Response received: 29 April 2016

In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), EASA NPA 2016-01 was published on 23/03/2016. The NPA 2016-01 proposal (dedicated to certification specifications (CS) of rotorcraft under CS-29 or CS-27) includes a provision for a requirement meeting the intent of this safety recommendation. The proposed CS 27 /29.1415 requires life rafts remote controls to be located within easy reach of the flight crew, occupants of the passenger cabin and survivors in the water with the rotorcraft in the upright floating or capsized position.

The application of the requirement to existing helicopters will be considered in a second NPA.

AAIB Assessment – Partially Adequate Open

(SRIS Reference: GB.SIA-2016-0026)