| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
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**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.

**AAIB Assessment – Adequate - Closed**

**RESPONSE HISTORY**

**N/A**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
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**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:** 21 November 2019

In the aftermath of the incident, and subsequent AAIB safety recommendation, Aerodrome oversight focussed on remedial work to the 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.

**AAIB Assessment – Adequate – Closed**

**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**

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
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**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.

**AAIB Assessment – Not Adequate - Closed**

**RESPONSE HISTORY**

**N/A**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
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**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.

**AAIB Assessment – Adequate - closed**

**RESPONSE HISTORY**

**Response received:** 6 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.

**Previous AAIB Assessment – Not Adequate - Open**

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

**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
(c) recurrent training
(d) recurrent checking
(e) 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

**AAIB Assessment – Adequate - Closed**

**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)

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
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**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.

**AAIB Assessment – Adequate - Closed**

**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**

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
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**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:** 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 HISTORY**

**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.

**Previous AAIB Assessment – Partially Adequate - Open**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
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**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.

**AAIB Assessment – Not Adequate - Closed**

**RESPONSE HISTORY**

**N/A**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
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**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.

**AAIB Assessment – Adequate - Closed**

**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)

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
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**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:** 5 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.

**AAIB Assessment – Adequate - Closed**

**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.

**Previous AAIB Assessment – Partially Adequate - Open**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
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**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:** 7 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 HISTORY**

**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.

**Previous AAIB Assessment – Partially Adequate - Open**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
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**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

**AAIB Assessment – Adequate - Closed**

**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)

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
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**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.

**AAIB Assessment – Adequate - Closed**

**RESPONSE HISTORY**

**Response received:** 19 April 2018

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.

**Previous AAIB Assessment – Partially Adequate - Open**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
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**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.

**AAIB Assessment –Adequate - Closed**

**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)

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
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**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:** 30 April 2019

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 HISTORY**

**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 (EHEST) 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.

**Previous AAIB Assessment – Partially Adequate - Open**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
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**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:** 6 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**

**RESPONSE HISTORY**

**N/A**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
|---|---|---|---|

**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:** 6 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.

**AAIB Assessment – Not Adequate - Closed**

**RESPONSE HISTORY**

**N/A**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
|---|---|---|---|

**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:** 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**

**RESPONSE HISTORY**

**N/A**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
|---|---|---|---|

**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:** 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 HISTORY**

**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.

**Previous AAIB Assessment – Partially Adequate - Open**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
|---|---|---|---|

**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:** 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 HISTORY**

**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.

**Previous 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.

**Previous AAIB Assessment – Partially Adequate – Open**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
|---|---|---|---|

**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 capsize 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.

**AAIB Assessment – Partially Adequate - Open**

**RESPONSE HISTORY**

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-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, paragraph (c)(8): '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.'

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.

**Previous AAIB Assessment – Not Adequate - Open**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
|---|---|---|---|

**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

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.

**AAIB Assessment – Adequate - Closed**

**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'.

- 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.

**Previous 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'.

**Previous AAIB Assessment – Not Adequate - Open**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
|---|---|---|---|

**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.

**AAIB Assessment – Adequate - Closed**

**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.

**Previous 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.

**Previous AAIB Assessment – Not Adequate - Open**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
|---|---|---|---|

**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 2018

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.'

**AAIB Assessment – Partially Adequate - Closed**

**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).

**Previous AAIB Assessment – Partially Adequate - Open**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
|---|---|---|---|

**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).

**AAIB Assessment – Not adequate - Closed**

**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.

**Previous AAIB Assessment – Partially Adequate – Open**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
|---|---|---|---|

**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:** 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 HISTORY**

**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.

**Previous AAIB Assessment – Not Adequate - Open**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
|---|---|---|---|

**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.'

**AAIB Assessment – Adequate - Closed**

**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).

**Previous AAIB Assessment – Partially Adequate - Open**

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

| AS332 L2 Super Puma, G-WNSB | On approach to Sumburgh Airport | 23 August 2013 | Accident |
|---|---|---|---|

**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:** 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 HISTORY**

**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.

**Previous AAIB Assessment – Partially Adequate - Open**