EASA
European Aviation Safety Agency

ETSO workshop 2018

Emergency Breathing Systems (EBS) for Rotorcrafts in Off-shore Operation

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Summary

- Legal basis for EBS requirement for rotorcrafts operated in off-shore areas
  - EU Regulation for Air Operations
  - Emergency Breathing System ETSO Development Status
    - ASD-STAN Working Group EBS Standard EN 4856
- ETSO Standard release
- Major certification aspects related to EBS
  - Certification and limitation related to the survival system
  - Introduction of EBS is not anticipated as minor
  - Proper ICAs

Air Ops 1/3

- COMMISSION REGULATION (EU) 2016/1199 of 22 July 2016 amending Regulation (EU) No 965/2012
  - SUBPART K HELICOPTER OFFSHORE OPERATIONS is added in Annex V (Part-SPA) to the above rule. Specifically requiring from 1st July 2018:
  - SPA.HOFO.165 Additional procedures and equipment for operations in a hostile environment
    - **(c) Emergency Breathing System**

      All persons on board shall carry and be instructed on the use of **Emergency Breathing Systems.**

Air Ops 2/3

- SPA.HOFO.165 Additional procedures and equipment for operations in a hostile environment
  - **(a) Life jackets**
    - Life jackets shall be worn at all times by all persons on board unless integrated survival suits that meet the combined requirement of the survival suit and life jacket are worn.

Air Ops 3/3

- (b) **Survival suits**
  - (1) General
  - When the weather report or forecasts available to the commander/pilot-in command indicate that the sea temperature will be less than plus 10 °C during the flight, or when the estimated rescue time exceeds the calculated survival time, or the flight is planned to be conducted at night, each passenger on board shall wear a survival suit.
  - (2) Medically incapacitated passengers
  - …

Air Ops – AMC for EBS

- AMC1 SPA.HOFO.165(c) Additional procedures and equipment for operations in hostile environment
  - EMERGENCY BREATHING SYSTEM (EBS)
    - The EBS of SPA.HOFO.165(c) should be an EBS system capable of rapid underwater deployment.

Current ETSO Available 1/2

- EASA CS-ETSO Amendment 1 (2006) introduced emergency equipment's STDs for Operations in Hostile Sea Areas (ex JAR-OPS3 now EU Reg.965/2012):
  - ETSO-2C502 “Helicopter Crew and Passenger Integrated Immersion Suit”
  - ETSO-2C503 “Helicopter Crew and Passenger Immersion Suits for Operations to or from Helidecks Located in a Hostile Sea Area”

Current ETSOs Available 2/2

- ETSO-2C504 “Helicopter Constant-Wear Lifejackets for Operations to or from Helidecks Located in a Hostile Sea Area”
- ETSO-2C505 “Helicopter Life raft for Operations to or from Helidecks Located in a Hostile Sea Area”

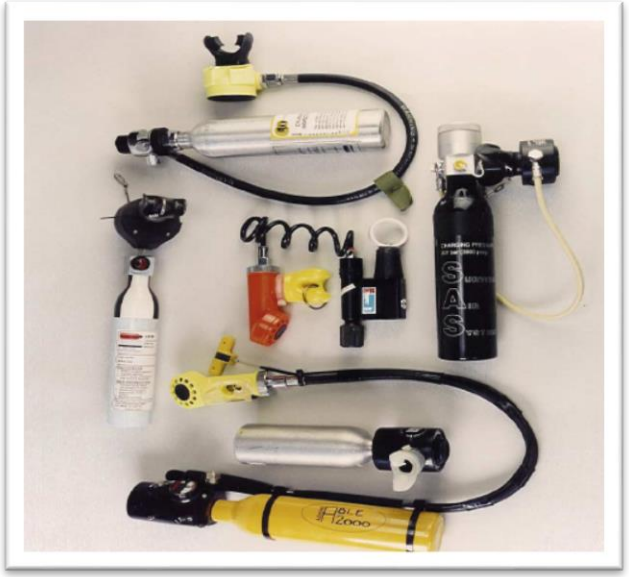
- An ongoing rulemaking task is revising the content of these standards to reflect latest international standards.
- Next CS-ETSO Amdt.15 is planned to include a standard for EBS. A workgroup was tasked to draft an Industry Standard representing the basis for the ETSO.

ETSO EBS Standard Development

- ASD-STAN European Standards for Aerospace & Defence
  - ASD-STAN Group D1S9: Ditching Equipment
  - WG started 27 January 2016 with main inputs from RMT and NPA2016-01
  - WG composed of 20 members of Industry, NAAs and EASA
  - More than five joint meetings, next planned in October 2018
  - EBS work completed, final EN 4856 to be issued soon, which will be reference STD for the ETSO.

EBS Integration - 1/3

- EBS is integrated in constant wear Lifejacket and Suits designs to constitute a survival system



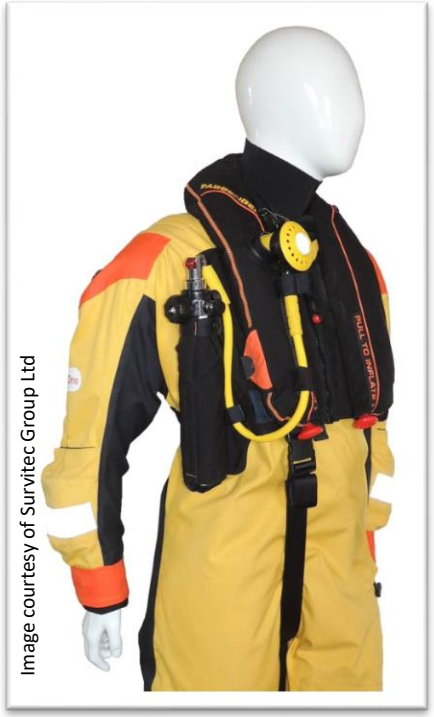


Image courtesy of Survitec Group Ltd

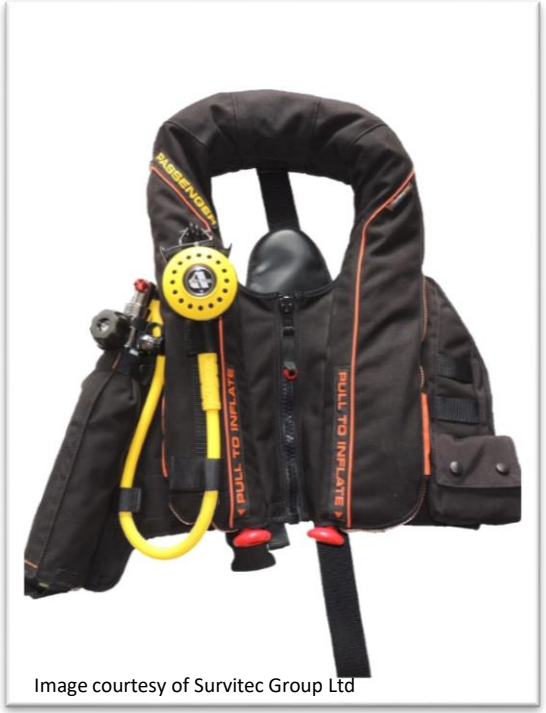


Image courtesy of Survitec Group Ltd

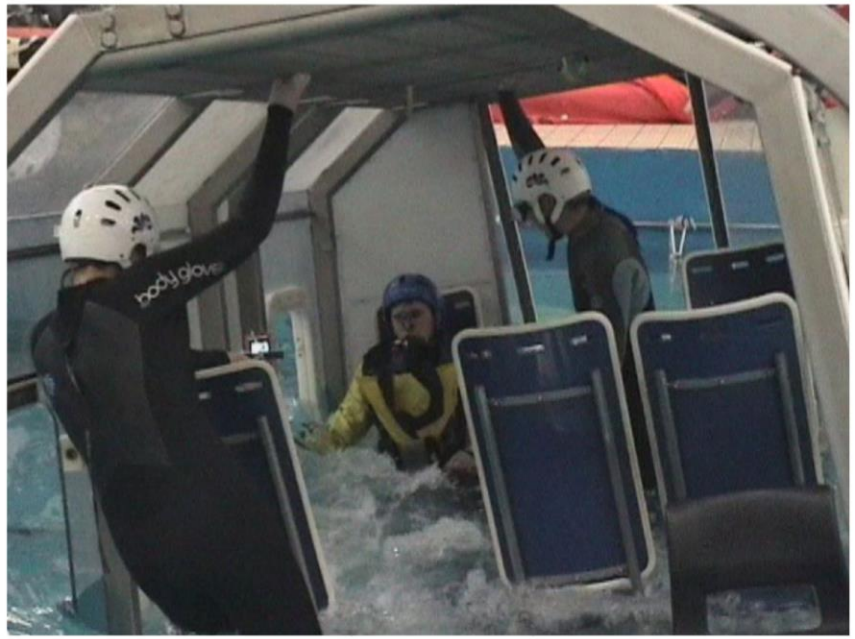
EBS Integration - 2/3

- Special attention must be given to compliance demonstration for the requirements that could be affected by the presence of EBS on the overall survival system
- Particularly:
  - Inflation behaviour
  - self righting capacity
  - underwater escape, e.g. snagging, buoyancy, ….
  - etc..

EBS Integration - 3/3

- Main Requirements for EBS
  - Breathing performance
  - Compatibility in survival system
  - One handed Deployment
  - Ease of deployment, manoeuvrability
  - Low snagging risk and low added buoyancy during helicopter underwater escape
  - Cold water performance

Figure 8: Capsize exercise, subject using EBS



Certification issues - 1/2

- Compliance demonstration includes compatibility testing for combination of survival suit-life jacket-EBS as a system
- Consequently EBS ETSOA must refer to specific suit(s) and lifejackets(s) with which use is approved.
- Each combination must be certified and listed in the DDP in order to be included in the ETSO Authorization

Certification issues - 2/2

- Changes to currently approved Suit or Jackets to introduce EBS must go through EASA
- EBS clear ICA, inspection procedures, pre-flight check etc.

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Thank you for your attention!

Any questions?

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