



# EASA

European Aviation Safety Agency

# EASA – Rulemaking Activities

presented by  
Enzo Canari  
Cabin Safety Expert  
IASFPF Meeting  
Cologne, 14-15 May 2019

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# EASA – Rulemaking Activities

- Halon Replacement Status
- Halon-free portable fire extinguishers
- Cargo Compartment MPS
- EASA Proposed Certification Memorandum on Smoke Propagation Testing
- EASA Certification Review Item (CRI) on potential Risks due to devices containing Lithium batteries located on the flight deck



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# EASA – Halon Replacement Status

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# Halon Replacement Dates

## Dates for halon replacement

Purpose	Location of fire extinguishers	ICAO	Regulation (EU) No 1005/2009	Agency	
				CSs Initial Airworthiness	Regulation (EU) No 2015/640 (Part-26)
<b>End date Mandatory Retrofit</b>	Normally unoccupied cargo compartments	No retrofit mandated by ICAO	2040	Not proposed but the dates in Regulation (EU) No 1005/2009 directly apply	
	Hand-held in cabins and crew compartments		2025		
	Engine nacelles and APU		2040		
	Lavatory waste receptacles		2020		
<b>Forward fit New applications for individual Certificate of Airworthiness (CofA)</b>	Normally unoccupied cargo compartments	Not mentioned	Out of scope of Regulation (EU) No 1005/2009	Out of scope of CS-23, CS-25 and CS-29 (and of Part 21)	Not proposed
	Hand-held in cabins and crew compartments	2016 (Annex 6) 39th Assembly: shift to 2018			18 May 2019
	Engine nacelles and APU	Not mentioned			Not proposed
	Lavatory waste receptacles	2011			18 February 2020
<b>Cut off New applications for type Certificates (new design)</b>	Normally unoccupied cargo compartments	2024	2018	Halon no longer mandated by 'Book 1' of CS-23, CS-25 and CS-29, but neither prohibited, until Regulation (EU) No 1005/2009 applies	Not proposed but the dates in Regulation (EU) No 1005/2009 directly apply, unless there is a case by case derogation obtained per Article 13(4) of Regulation (EC) No 1005/2009
	Hand-held in cabins and crew compartments	Not mentioned	2014		
	Engine nacelles and APU	2014	2014		
	Lavatory waste receptacles	2014	2011		

• **End Date:** i.e. date after which the use of halon would no longer be permitted; all halon fire extinguishers and fire protection systems should be replaced, converted or decommissioned by the end date.

• **Forward Fit date:** reference date for issuance of the first CofA

• **Cut off date:** No halon in the design of new application for Type Certificates possible .

DG-CLIMA maintains 2018 as Cut off date for Cargo Comp.



# Halon Replacement Dates

## ➤ EASA / DG-CLIMA Discussion

### ➤ Clarification of EC Regulation No. 1005/2009, i.e definition of new equipment vs EASA Change Product Rules (Part-21)

- EC Regulation No. 1005/2009 has been amended (Ref. Commission Regulation (EU) 2017/605) to provide the following clarification:

*For reasons of legal clarity and consistency in the implementation of Regulation (EC) No 1005/2009, it is necessary to specify in the definition of 'new equipment' under point 2(b) of Annex VI to Regulation (EC) No 1005/2009 that for aircraft, **request for type certification relates only to request for new type certification and does not cover changes to an existing type certification.** This would also be in line with the concept used for halon standards by the International Civil Aviation Organisation.*

- The cut off dates in the EC Regulation will apply only to new TCs as per Part-21 definition.

### ➤ Derogation process: entry point DG-CLIMA/Member State

- Derogation **request** already filed to DG-CLIMA for Engine application by a EU member State in support of a EU Applicant.
- Non-EU Applicants will have to contact directly DG-CLIMA to start the derogation process.
- EASA will provide support (limited to the evaluation of the technical aspects of the derogation proposal) to DG-CLIMA upon request.



# Halon Replacement Dates

- EASA / DG-CLIMA Discussion
  - Halon guide (DG-CLIMA / EASA) in preparation
    - The primary purpose of the guide is to clarify the implementation of Regulation (EC) No 1005/2009 (and subsequent amendments) for the aeronautical products.
    - The guide will be published on the websites of EASA and DG-CLIMA
    - Target for the release of the guide is **Q2 2019**
  - Working arrangement between EASA and DG-CLIMA to define respective roles and responsibilities on exchange of data/information related to Halon replacement activities



# RMT Overview

## ➤ RMT.0560

➤ Title: Halon: Update of Part 26 to comply with ICAO standards

### ➤ Applicability:

- TOR Iss. 1: lavatory and handheld fire extinguisher for newly produced large aeroplane and large rotorcraft
- Note: CS-23/-27 not covered yet

### ➤ Schedule:

- NPA publication: 18.11.2014
- CRD & Opinion to EC: 02 Aug 2016
- Commission regulation 2019/133 amending Part 26 : 28 Jan 2019
  
- Foward fit date for handheld: 18 May 2019
- Forward fit date for lavatory built-in extinguishers: 18 Februray 2020
  
- CS-26 Issue 2: 27 Feb 2019

**TASK TERMINATED**



# EASA Contacts

- ▶ For EASA Rulemaking activities:  
Youri Auroque (Regulations Officer)
- ▶ For applications related to Powerplant Systems:  
Remi Deletain (Powerplant Expert)
- ▶ For applications related to Cargo Compartments,  
Lavatories and Portable Fire Extinguishers:  
Thomas Manthey (Cabin Safety Expert)



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## Halon-free portable fire extinguishers (1/2)

Commission Implementing Regulation (EU) 2019/133 was released on 28 January 2019 to amend Regulation (EU) 2015/640 introducing new Part 26 requirements:

### ➤ 26.170 Fire extinguishers

*Operators of **large aeroplanes** shall ensure that the following extinguishers do not use halon as an extinguishing agent:*

*[...]*

*(b) portable fire extinguishers in large aeroplanes for which the first individual certificate of airworthiness is issued on or after **18 May 2019**.*

### ➤ 26.400 Fire extinguishers

*Operators of **large helicopters** shall ensure that the following extinguishers do not use halon as an extinguishing agent:*

*[...]*

*(b) portable fire extinguishers in large helicopters for which the first individual certificate of airworthiness is issued on or after **18 May 2019**.*



## Halon-free portable fire extinguishers (2/2)

- ▶ EASA considers the installation of a new type of Halon-free portable fire extinguisher will require the issuance of a MOC CRI and therefore has to be considered as a major change to the aircraft design.
- ▶ EASA has developed generic MOC CRIs to address the installation of portable Halon-free fire extinguishers on large aeroplanes and large helicopters.
- ▶ The CRIs define an acceptable means of compliance to the requirements of CS 25.851 and CS 29.851 respectively for large aeroplanes and large helicopters and are based on:
  - ▶ the minimum performance standard outlined in ETSO-2C515 (but an ETSO Approval is not mandatory)
  - ▶ the guidance of FAA AC 20-42D
- ▶ The CRIs require demonstration that performance of the extinguisher is guaranteed in all applicable environmental and operation conditions.



## Cargo Compartment MPS (1/2)

- In the kick-off meeting of the Cargo Compartment MPS Task Group (AC, October 2018), EASA took the action to coordinate with the FAA and confirm that additional testing will be required beyond what is already prescribed by the existing MPS.
- The MPS was developed as a means of establishing equivalency of a halon replacement agent to Halon 1301/1211 for use in built-in fire suppression systems installed in cargo compartments of large aeroplanes.
- The MPS includes a surface burning fire load but not a combined or realistic fire load – that is a fire that contains material that results in surface burning fires, flammable liquid fires, fires from lithium batteries.
- Coordination between the FAA and EASA was finalized in March 2019 and a common position has been reached on the approach to be followed for upcoming certification projects.



## Cargo Compartment MPS (2/2)

- The FAA and EASA find that the MPS for Halon replacement in cargo compartment fire suppression system needs to be complemented by an additional test addressing a cargo fire scenario in which a more “realistic” fire load is simulated (e.g. involving lithium batteries/cells in the fire event).
- The FAA Tech Center experimented this concept in the tests conducted in 2018 (the so-called “challenge fire test”). The setup used in those tests is to be considered only indicative of what the final test definition could be.
- The detailed test conditions, including the definition of the fire load (number, type and SoC of batteries; quantity of flammable fluids and other flammable cargo items), are not defined at the moment.
- The FAA and EASA will further coordinate to define a harmonized standard to be used in upcoming certification projects.



## **EASA Proposed Certification Memorandum on Smoke Propagation Testing (1/2)**

- The purpose of this CM is to provide specific clarification and additional guidance regarding certification testing to be conducted to evaluate the entry of hazardous quantities of smoke into compartments occupied by the crew or passengers as a result of an in-flight fire event in the pressurized areas of the fuselage of a large aeroplane.
- Coordination with the FAA was started with the objective to propose a policy that is fully harmonized.
- All open items have now been resolved and the CM is currently in the final phase of the internal review process.
- EASA intends to start the public consultation phase for the Proposed CM in June 2019.



## **EASA Proposed Certification Memorandum on Smoke Propagation Testing (2/2)**

- ▶ In general, a smoke penetration test is successful only if the compartment is provided with effective isolation means (e.g. smoke barriers, airtight liners) to prevent smoke penetration into the surrounding areas and if the ventilation system available in the compartment may be isolated upon detection of a fire event.
- ▶ In-flight fires may originate in other compartments (e.g. equipment bays, Class A cargo compartments, lavatories, crew rest compartments, remote areas of the cabin, etc.) that may not be equipped with the above-mentioned isolation features. For such type of compartments, EASA finds it appropriate to conduct smoke propagation tests rather than smoke penetration tests.
- ▶ In a smoke propagation test, the affected compartment does not necessarily need to be smoke-filled as is required in a smoke penetration test, although a larger amount of smoke should be generated than that used in a smoke detection test.



## **EASA CRI on potential Risks due to devices containing Lithium batteries located on the flight deck (1/2)**

- ▶ In May 2018 EASA has released to EASA TC holders a Continuing Airworthiness Review Item (CARI) to address the higher risk of in-flight lithium battery fires due to the increasing number of lithium batteries contained in equipment carried by the flight crew on commercial transport aircraft.
- ▶ Lithium batteries and PEDs commonly found in the flight deck are electronic flight bags (EFB) and those carried by the flight crew for personal convenience. Typical location may be in the storage boxes available or on mounting brackets when provided. It is also possible that PED's are stored connected to a charging device, e.g. a power bank or USB charger.
- ▶ On certain aircraft design, the flight deck storage boxes may be located in close proximity to built-in oxygen lines routed in the flight deck, the oxygen mask storage box or other critical system components.



## **EASA CRI on potential Risks due to devices containing Lithium batteries located on the flight deck (2/2)**

- EASA does not envisage to prohibit the storage and usage of PED's in the flight deck. However, the hazard associated to lithium battery fires due to lithium batteries thermal runaway must be addressed, mitigated and minimized by design provisions and best practices.
- The CARI does not apply to the Initial Airworthiness domain. EASA is developing a Certification Review Item (CRI) that will address the same safety issue as the CARI and will be released for upcoming certification projects.
- The content and the applicability of the CRI is still under internal discussion.



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