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Replacement of Halon In Aircraft Fire Suppression Systems

Outcome of the A39 Assembly

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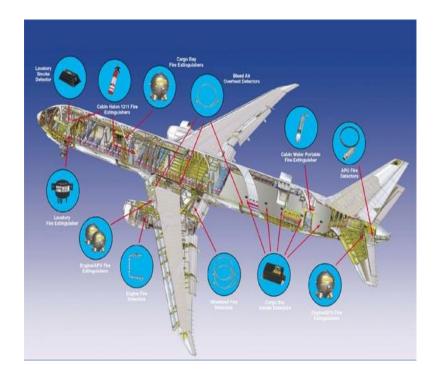
24 – 27 Oct 2016, USA



INTRODUCTION

- Outlining the issues
- Outcomes of the A39 Assembly and lessons learned
- Timeline for new Standards

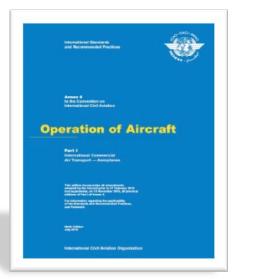
G Summary





STATUS OF IMPLEMENTATION- LAVATORY

NO COUNTRY LEFT BEHIND



Standard is considered
 Implemented

 Iavatory fire extinguishing systems used in aircraft produced on or after 31 December 2011





STATUS OF IMPLEMENTATION- PORTABLE

NO COUNTRY LEFT BEHIND



- Applicability date
- New aircraft delivery
- Agent approval delays
- **ICAO** actions



✓ Portable fire extinguishers used in aircraft produced on or after 31 December 2016.



STATUS OF IMPLEMENTATION – ENGINE NACELLE / APU

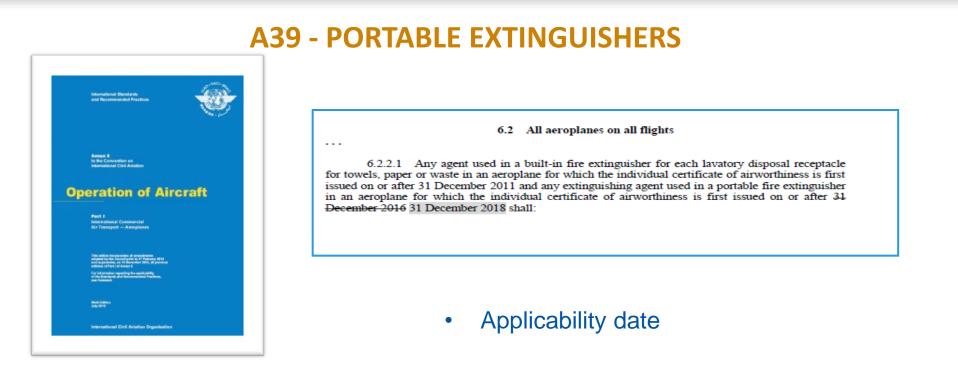
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Airworthiness of Aircraft	
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International Chill Anterion Organization	

- Applicability date
- Replacement agent
- Set back with identified alternative
- HAAP consortium for common solution. Work to be completed by 2018



 ✓ Engine nacelle and auxiliary power unit (APU) fire extinguishing systems used in aircraft for which application for type certification will be submitted on or after 31 December 2014.







A39 - CARGO COMPARTMENT FIRE SUPPRESSION SYSTEMS

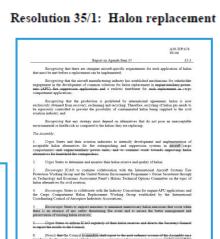
Assembly Resolutions in Force (as of 4 October 2013)

Dec 10022

	A58-0: Halon replacement
	Recognizing the importance of aircraft fire extinguishing systems to the safety of fight;
	Recognizing that hangenated hydrocarbons (haron) have been the main fre extinguishing agent used in civil arcraft fre extinguishing systems for over fifty years;
	Whereas harons are no longer being produced by international agreement because they release contributes to oppo- depretion and climate change;
abed by a	Recognizing that more needs to be done because the available halon supplex are decreasing and unsure and that the environmental community continues to be concerned that halon alternatives have not been developed for all fre estimutining systems in (v) arrant.
	Recognizing that the Minimum Performance Standard for each application of halon has been developed already by the International Aircraft Systems Fire Protection Working Group with participation by industry and regulatory authorities;
	Recognizing that there are stringent aircraft-specific requirements for each application of halon that must be met before a repracement can be impremented;
	Recognizing that the aircraft manufacturing industry has established mechanisms for stakeholder engagement in the development of common solutions for halon replacement in engretauxitary powerunit (APU) fire suppression againstons and a realistic timatimum for such replacement in cargo compartment againstations;
	Recognizing that the production is prohibited by international agreement, halon is now exclusively obtained from recovery, reclaiming and recycling. Therefore, recycling of halon gas needs to be reprovely controlled to prevent the possibility of constrainated halon being supplied to the civil available industry; and
mation	Recognizing that any strategy must depend on attematives that do not pose an unacceptative environmental or health risk as compared to the halons they are repracing;
	The Alsembly:
	 Ligges Blates and their aviation industries to intensity development and implementation of acceptation halon alternatives for for extinguishing and suppression systems in samp compariments and engineerisautiany power units, and to continue work towards improving halon alternatives for hand-tell for extinguishers;
	2. Linges States to determine and monitor their halon reserve and quality of halon;
	A Description of Add in contrast contrastent with the international factors for Residence interface

 Encourages IGAO to continue collaboration with the international Aircraft Systems Fire Protection Working Group and the United Nations Environment Programmes Geone Secretants through its Technology and Economic Assessment Panel's Halons Technical Octoos Scientifies on the tool: or have natives for civil avlaton;

A38.9



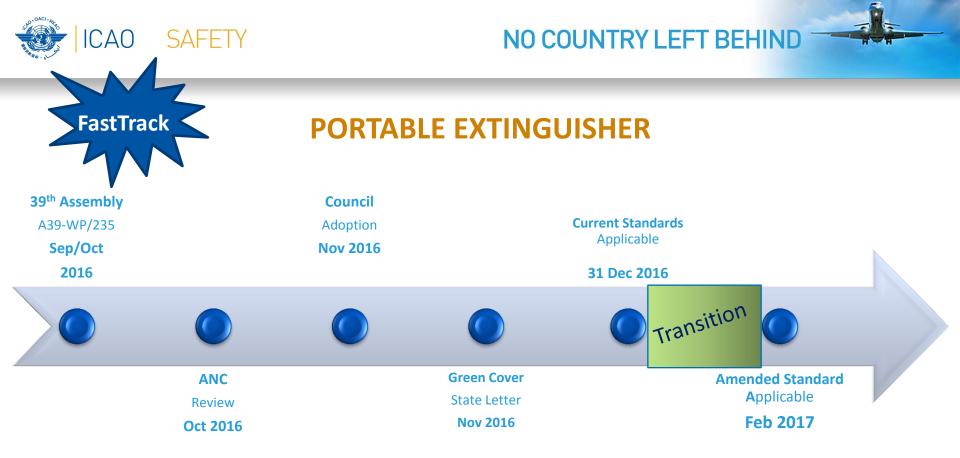
6 Direct: that the Council to mandate shall report to the next ordinary services of the Assembly on a tamebrane for the replacement of halos in cargo comparison for reportions update and the specific data in the 2024 tamebrane, and the application for type certification will be subanised after a specified date in the 2024 tamebrane, and 2 Dislover that this machine supersuch specific data and \$2.2018/0.0011

A39 Report

eclares that this resolution supersedes Resolution A37.9A35

New Resolution:

- 2024 timeframe
- Minimizing of unnecessary halon emissions
- Industry Consortium for engine nacelle/APU
- ➢ IASFPWG & UNEP/HTOC
- Halon reserve and quality





CARGO COMPARTMENT







APPLICABILITY DATE FOR CARGO

✓ Aircraft for which an application for Type Certificate is submitted to the State of Design on or after

January 2024

✓ shall use an alternative agent to halon in the aircraft fire suppression or extinguishing systems in the cargo compartment.





- Establishing a 2024 applicability date for the replacement of halon in cargo compartment fire suppression systems will
 - Drive the development of halon alternative for cargo
 - Accelerate the transition to non-halon alternative
 - Minimize waste of existing reserves
 - Raise awareness
- The challenges of timely compliance with Annex and 8 SARPs
 - Lessons learned from portable extinguisher SARPs implementation issues
 - Reporting to the 40th session of the Assembly.





