

Cargo Compartment Halon Replacement Working Group (CCHRWG) Update

November 1, 2017 International Aircraft Systems Fire Protection Working Group Meeting Atlantic City, New Jersey, USA

By

Robin Bennett (Boeing, AIA), CCHRWG Chair Andre Freiling (Airbus, ASD), CCHRWG Co-Chair



Industry coordination ongoing

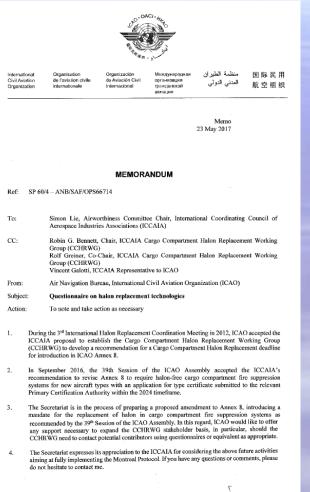
- CCHRWG Terms of Reference require continued effort in support of 2024 deadline
 - Deliverable: Continued ICCAIA representation to ICAO regarding a cargo compartment halon replacement and implementation status for new type certification aircraft applications.
- Name changed . . .
 - ICCAIA renamed the industry expert groups to distinguish them from similarly named ICAO bodies.
 - Cargo Halon Replacement Working Group → Cargo Halon Replacement Advisory Group
 - New acronym: CCHRAG



ICAO moving forward

ICAO May 23, 2017 memo

- "ICAO would like to offer any support necessary to expand the CCHRWG stakeholder basis . . . using questionnaires or equivalent . . ."
- "The Secretariat expresses its appreciation to the ICCAIA for considering the above future activities aiming at fully implementing the Montreal Protocol."



Yours sincerely, Copf. Miguel Marin A/C Operational Safety (OPS)

ICAO Coordination Continues

- June 21, 2017 ICAO Letter to Member States
 - "Subject: Proposed amendment to Annex 8 regarding halon replacement in cargo compartment fire suppression systems
 - ... the provisions of 1.2.6 of this part shall only be applicable to an aircraft type for which an application for a Type Certificate is submitted to the State of Design on or after 28 November 2024.
 - 1.2.6 The approved design of an aircraft under Part IIIB of this Annex shall use extinguishing agents that are not listed in the 1987 *Montreal Protocol on Sustances that Deplete the Ozone Layer*..."
- October 17, 2017 ICAO Working Paper
 - Summary of comments none adverse (ICCAIA responded w/agreement)
 - Secretariat to propose amendment to the Council for adoption in 2018

Little and the set of the set
in the first off of the start o
for the second s
Aroys, to Malain, to more of any higher resolutions
Find Concerned Sectors (Sectors)
Enclosure:
Enclosure:
A-3
1.2 Design aspects of the appropriate airworthiness requirements
12.6 The approved design of an alcoselt under Pert IIIB of this Annex shall use extinguishing against that are not listed in the 1957 Monereal Protocol on Substances that Deplots the Ocean Laser as it
sppars in the Tenth Edition of the Handbook for the Montreal Protocol on Substances that Deplete the Ocone Layer, Amer. A, Group II, in the sizeraft fire suppression or extinguishing systems for the cargo
compertment.
Note: Information concerning acceptable agents is constanted in the report of the UNEP Balants Technical Options Committee Technical Note No. 1 — New Technology Hulon Alternatives and FAA Raport No. DOITRAA/AR-11-01, Options to the Use of Hulons for Alternit Fire Supportion Systems.
Origin: Rationale:
A39 The proposed anaechneat, pursuant to Assembly Resolution A39-13, establishes Secretariat requirements and a timeframe for the replacement of the halogenested hydrocarbox
(abios) apper in aircraft cargo comparation for poposoion systems with an apper that causes due leave mount of impact to the servicement wills performing the specific few protection applications for which the equipment was designed.
Annex 5 contains the required Standards for the system design features and restricts the use of certain come depleting substances (including halon) as agents in the
stormft fire copression or extinguishing systems in the invotories, angines and smallery nonzer unit, but does not unarily the some restriction on speets for corpo-
sizenti fire oppression or avtinguishing vytanus in the invatories, angine and modifiery power mit, but does not projetly the same severities on appear for compo- compartant. Therefore, the replacement of the kalon flow represents agent in the events, commutant is incorrected in the Amore II succession and the horses.
alorshifting suppression or extinguishing systems in the invatories, angular and ancellary power unit, but does not specify the same systematic angular for cargo comparison. Thus for a unit angular state of the holes for comparison spaces in the
atom first suppression or extensionlass proteins in the investors, asgues and sensitivy proves such, by the out organized phases are setted on a sparse for engine comportants. Tanaking, and an applications of fields having for associated with the longer comparison is incomported in the Amoust it association which will be comportant its incomported in the Amoust its association which will be comportant the application of the Amoust its association with the solution of the Amoust its Amoust its association of the Amoust its association with an end on the Amoust filter with Amoust its area that its and the and all and or down more filter with Amoust its Amoust its must be in the an amoust and the Amoust Amoust filter and the Amoust its Amoust its an amoust and and the Amoust Amoust filter and the Amoust its Amoust its an amoust and the Amoust Amou

Stakeholder engagement is constructive

- May 11th CCHRWG Meeting engaged stakeholders
 - 27 participants w/representation from
 - 3 agencies, 6 suppliers, 6 OEMs
 - Overview of Halon Replacement Technologies Assessment Plan
- Stakeholder Questionnaire on potential technologies
 - Eight (8) participants including system suppliers, chemical manufacturers, and others
- Meeting tomorrow to review next steps
 - Technical assessment criteria
 - Supporting ICAO deadline

				ave i ar a around ber requiring march
				replacement for airplanes with new type
				certificates. What are the steps you will
				have to take to qualify a replacement
				technology to be ready for this deadline?
			3	If you are using the TRL (Technology
	201			Readiness Level) approach, at which TRI
	I			is your technology currently? Is your
DATE	DELIVERABLE			development schedule correlated to the
17 April 2017	Confirm Technical Work Stream Pla			2024 deadline?
5 May 2017	Finalize guestionnaire format and I		4	If you are using a different technology
				development system, what is your
11 May 2017	Stakeholder meeting to invite halo			development schedule with respect to the
	assessment by CCHRWG to identify			2024 deadline?
	deadline.	L b	5	What is the basic technical approach of
June - Sept 2017	CCHRWG finalizes and distributes of		-	your technology (e.g. chemical, physical,
	participants, develop plan for infor			inerting, single agent, multiple agents,
	criteria, and participant coordination			blends, etc.)
Oct 2017	CCHRWG status report to ICAO	ĿЬ	6	Does your replacement technology conta
Oct 2017	Stakeholder meeting to confirm pla		ĭ	ODS, GHG or other regulated substance
		L H	7	What specific aircraft architectures or
Nov 2017 -	CCHRWG executes assessment pla		1	provisions (e.g. bleed air, fuel tank inertia
April 2018				systems, etc.) does your technology use?
May 2018	Stakeholder meeting to review pro	L H	8	What, if any, are the operational restrictis
	and/or feedback.		•	in using your technology in aircraft durin
June - Sept 2018	CCHRWG to complete assessment			flight (e.g. limitation of ETOPS diversion
Oct 2018	CCHRWG status report to ICAO	L	-	time)?
Oct 2018	Stakeholder meeting to review fina		9	What, if any, are the operational restriction
				in using your technology in aircraft on-
Nov 2018 -	CCHRWG to prepare final report (I			ground and during maintenance (e.g. cold
April 2019				weather operations)?
May 2019	Stakeholder meeting to share final		10	
				technology on airlines and maintenance
June – Sept 2019	CCHRWG to prepare for ICAO Gene			operations (e.g. spare parts management
Oct 2019	ICAO General Assembly accepts IC			and agent availability)?
Oct 2019	Stakeholder meeting to share ICAC		11	Is your technology optimized for a
	steps, if appropriate			particular aircraft size? If so, explain.
-			_	

DRAFT Questionnaire for Stakeholders; Fire Suppression/Extinguishing Systems based on Halon J

	Question	Answer (text)	No Answe
	-		(x)
1	Are you currently working on replacements		
	for Halon1301 for aircraft cargo		
	compartment fire suppression systems?		
2	ICAO is in the process of adopting Annex 8		
	2024 as a deadline for requiring Halon		
	replacement for airplanes with new type		
	certificates. What are the steps you will		
	have to take to qualify a replacement		
	technology to be ready for this deadline?		
3	If you are using the TRL (Technology		
	Readiness Level) approach, at which TRL		
	is your technology currently? Is your		
	development schedule correlated to the		
	2024 deadline?		
4	If you are using a different technology		
	development system, what is your		
	development schedule with respect to the		
	2024 deadline?		
5	What is the basic technical approach of		
	your technology (e.g. chemical, physical,		
	inerting, single agent, multiple agents,		
	blends, etc.)		
6	Does your replacement technology contain		
	ODS, GHG or other regulated substance(s)?		
7	What specific aircraft architectures or		
	provisions (e.g. bleed air, fuel tank inerting		
	systems, etc.) does your technology use?		
8	What, if any, are the operational restrictions		
	in using your technology in aircraft during		
	flight (e.g. limitation of ETOPS diversion		
	time)?		
9	What, if any, are the operational restrictions		
	in using your technology in aircraft on-		
	ground and during maintenance (e.g. cold		
	weather operations)?		
10	What are the anticipated impacts of your		
	technology on airlines and maintenance		
	operations (e.g. spare parts management		
	and agent availability)?		
11	Is your technology optimized for a		
	particular aircraft size? If so, explain.		



2017 - 2019 CCHRAG WORK PLAN Technical Work Stream

DATE	DELIVERABLE	ASSIGNED TO:
17 April 2017	Confirm Technical Work Stream Plan Schedule	CCHRWG Core Group
5 May 2017	Finalize questionnaire format and ICAO coordination	CCHRWG Core Group
11 May 2017	Stakeholder meeting to invite halon replacement suppliers to participate in an assessment by CCHRWG to identify potential candidates in support of the ICAO 2024 deadline.	CCHRWG Core Group & Stakeholders
June - Sept 2017	CCHRWG finalizes and distributes questionnaire, logs responses and confirms participants, develop plan for information management, establishment of assessment criteria, and participant coordination schedule.	CCHRWG Core Group
Oct2017Feb 2018?	CCHRWG status report to ICAO	CCHRWG Core group
Oct Nov 2017	Stakeholder meeting to confirm plan and commitment with participants.	CCHRAG Core Group & Stakeholders
Nov 2017 – April 2018	CCHRAG executes assessment plan including participant input and coordination.	CCHRAG Core Group & Stakeholders
May 2018	Stakeholder meeting to review progress to assessment plan and provide updates and/or feedback.	CCHRAG Core Group & Stakeholders
June - Sept 2018	CCHRAG to complete assessment	CCHRAG Core Group & Stakeholders
Oct 2018	CCHRAG status report to ICAO	CCHRAG Core Group
Oct 2018	Stakeholder meeting to review final assessment and confirm conclusions.	CCHRAG Core Group & Stakeholders
Nov 2018 – April 2019	CCHRAG to prepare final report (ICCAIA WP) for ICAO General Assembly	CCHRAG Core Group
May 2019	Stakeholder meeting to share final report and discuss next steps (if any).	CCHRAG Core Group & Stakeholders
June – Sept 2019	CCHRAG to prepare for ICAO General Assembly	CCHRAG Core Group
Oct 2019	ICAO General Assembly accepts ICCAIA WP & recommendation (if any).	CCHRAG Core Group
Oct 2019	Stakeholder meeting to share ICAO General Assembly outcome and potential next steps, if appropriate	CCHRAG Core Group & Stakeholders



Questions & Answers



Thank you!

Contact: Robin Bennett (robin.g.bennett@boeing.com) Andre Freiling (ANDRE.FREILING@airbus.com)

November 1, 2017 8