AIRWORTHINESS BULLETIN

Maintenance of Fire Extinguishing Systems

AWB 26-003 **Issue** : 6
Date : 30 June 2014

1. Effectivity

All aircraft Fire Extinguishing Systems, fixed and portable.

2. Purpose

To provide generalised advisory material regarding the adequate maintenance of fixed and portable Fire Extinguisher Systems in aircraft.

3. Background

The maintenance requirements of AD/BAL/13 have been removed and CASA has cancelled AD/FPE/6. *The Civil Aviation Regulations 1988* (CAR 1988) and the *Civil Aviation Safety Regulations 1998* (CASR 1998) continuing airworthiness regulations require maintenance to be performed on Fire Extinguishers. This AWB recommends appropriate maintenance.

Specific maintenance issues that have been brought to CASA's attention are mentioned in this AWB.

Additionally, this AWB explains that older maintenance procedures may not take into account Department of the Environment regulations regarding the handling and capture of Halon or other ozone depleting fire extinguishing agents.

4. Information

Cancellation of AD/FPE/6

CASA cancelled AD/FPE/6 on 1 August 2011 because it contained maintenance requirements that duplicated continuing airworthiness regulations.

CASA recommends the aircraft manufacturer's maintenance and overhaul requirements be nominated as the approved maintenance data (CAR 1988)/ instructions for continuing airworthiness [ICA] (CASR 1998) for the Fire Extinguishing System.

If the Fire Extinguishing System is not an OEM system and the modification approval does not nominate approved maintenance data/ICA, CASA recommends the Fire Extinguishing System manufacturer's maintenance and overhaul requirements be the basis for the approved maintenance data/ICA.

Removal of Maintenance requirements from AD/BAL/13

For the same reasons as supplied above for the cancellation of AD/FPE/6, the maintenance requirements of AD/BAL/13 have been removed. The same recommendations apply.

Appropriate maintenance of Fire Extinguishing Systems

Fire Extinguishing System maintenance should be conducted in accordance with the manufacturer's schedule.

The Fire Extinguishing System should be maintained and overhauled (i.e. decanted, internal inspection of containers, and hydrostatic tests carried out) in accordance with the aircraft manufacturer's schedule. If the aircraft manufacturer's schedule is silent on the system's maintenance or overhaul procedures or periods, the Fire Extinguishing System manufacturer's schedules should be used. The overhaul must be conducted by an approved facility, noting the environmental requirements detailed on page 3 of this AWB.

For 'aggressive' environments (e.g. operations around coastal areas), maintenance and overhauls should be conducted more often than the minimum recommended schedule.

If no maintenance or overhaul schedule is known, the system's continued integrity must be considered questionable. Either a maintenance schedule should be developed and approved, or the system replaced.

Specific Hand-held Fire Extinguisher maintenance issues

The Australian Standard AS1851:2005 for the maintenance of AS/NZS 1841 Hand-held Fire Extinguishers currently lays out 6 month, 12 month, and 5 yearly recurring inspections. For dry powder (stored pressure) and Vaporising liquid (Halon) types, the 6 month and 12 month recurring inspections are the same.

CASA has received SDRs and information regarding corrosion on the neck of bottles of Hand-held Fire Extinguishers. This is a particular problem for extinguishers used in coastal/high salt environments. Inspections should include this area by either removing the head, if possible, or by inspecting past the head components with the aid of a torch.

If the Fire Extinguisher is mounted near the floor, a more rigorous check of the Extinguisher head should be conducted. Fire Extinguishers have activated themselves due to previous damage from being trodden on or having baggage thrown on them.

For Hand-held Portable Fire Extinguishers, if no maintenance information is available, regular maintenance should at least include:

- check any tamper evident seals for integrity
- check the extinguisher is clean
- check the operating instructions are legible
- check the maintenance tag is attached
- visually inspect the exterior of the extinguisher for damage or corrosion
- check the operating head and trigger for signs of damage, cracked plastic, and straightness
- if the extinguisher if fitted with a hose (wand), check it is securely attached and shows no signs of cracking
- check the discharge nozzle is not blocked or damaged
- if the extinguisher is fitted with a pressure indicator, check it is within the correct operating range
- if the Fire Extinguisher location is placarded in the cabin, ensure the placard's visibility and security
- check the integrity of the mounting bracket and the function of the latching mechanism
- weigh the extinguisher to determine it is fully charged. In the lack of any specified details, up to 5% loss of the extinguishing agent weight is acceptable
- determine, where possible and without discharging any contents, that the actuating device is free of corrosion, moves freely, and undamaged
- check no modifications to the aircraft have obstructed access the extinguisher. If the extinguisher is mounted under/on/behind a seat, that it is accessible in all seating positions. For Fire Extinguishers in small aircraft and large aircraft cockpits, check that the primary Extinguisher is reachable by a pilot from the flight crew station.

Inappropriate maintenance of Fire Extinguishing Systems

Weighing of a Fire Extinguisher bottle on a bathroom scale or otherwise uncalibrated scale to check for its state of charge is not acceptable. The weighing scale used should be calibrated and any required correction applied when assessing potential weight loss. See AC 21-35(1.1) for details on calibration of equipment.

The *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989*

Some older maintenance schedules may now be inappropriate in that they predate Australian Environmental regulations created as a result of the Montreal Protocol and may not consider the ban on the discharge of ozone depleting gases into the atmosphere. Section 45B of the *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989* (Ozone Act), makes it an offence to, amongst other conditions, discharge Halon where "the discharge occurs in circumstances where it is likely that the scheduled substance will enter the atmosphere." Some extinguishing system maintenance and overhaul procedures may not ensure or provide for the Halon to be captured.

Some new imported small aircraft are fitted with disposable Halon Fire Extinguishers. These cannot be overhauled and are a throwaway item at the end of their life. Please dispose of the Fire Extinguisher responsibly by taking to a facility that can reclaim the Halon rather than release it the atmosphere during the disposal process. See the DoE guidance on the disposal of Halon products.

Requirements for the handling of scheduled substances

Regulation 302 of the *Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995* (Ozone Regulations) creates an offence to handle an scheduled substance used in fire protection equipment installed in aircraft unless you are, under Part 66 of the CASR 1998, a category A licence holder, a category B1 licence holder or a category B2 licence holder and have achieved the unit of competency CPPFES2043A - Prevent ozone depleting substance and synthetic greenhouse gas emissions. The list of scheduled substances can be found in Schedule 1 of the Ozone Act and includes Halons.

The term 'handle' is defined as anything, done to the fire extinguisher other than using it to prevent, control or extinguish a fire or supress an explosion, that carries the risk of its emissions; including:

(a) decanting the substance; or

(b) installing or maintaining fire protection equipment; or

(c) decommissioning or disposing of fire protection equipment.

The letter provided by the DoE's predecessor, at Appendix A, states that no enforcement action will be taken in situations where a LAME or AME has achieved competence in the required unit of competency or equivalent until the Ozone Regulations is amended. The DoE has confirmed that whilst an update to the Ozone Regulations was enacted in December 2013 the current position remains to be that the DoE will not undertake take any enforcement action where the following applies:

a) the person is a LAME or an AME in the aviation industry; and

b) the person has achieved competence in PRMPFES43A, CPPFES2043A or equivalent assessment outcomes at a CASA approved Maintenance Training Organisation or a Registered Training Organisation.

Contaminated Halon supplies

Recently, some Halon supplies have become contaminated, most notably one supply from Europe. These contaminated supplies, are subject to airworthiness action for removal and refill. As the world becomes increasingly reliant on slowly dwindling and increasingly reused Halon supplies, the risk of contamination increases. Any action to remove, refill or overhaul a contaminated fire extinguishing system component, as mandated by an Airworthiness Directive, should be reported to the CASA Service Difficulty Reporting (SDR) System.

5. Recomendations

All aeroplane and rotorcraft operators, particularly those using a System of Maintenance, review their nominated maintenance procedures of all Fire Extinguishing Systems fitted to the aircraft in light of CASA's cancellation of AD/FPE/6 and the information contained in this Airworthiness Bulletin. For Balloon operators, review their nominated maintenance procedures of Hand-held Fire Extinguisher fitted, in light of the removal of the maintenance requirements of AD/BAL/13.

6. Reporting

Aircraft Operators and Extinguisher Repair Stations are encouraged to report Fire Extinguisher defects through the CASA Service Difficulty Reporting (SDR) system.

7. Enquiries

Questions about the content of this Airworthiness Bulletin

Enquiries with regard to the content of this Airworthiness Bulletin should be made via the direct link e-mail address:

AirworthinessBulletin@casa.gov.au

Or in writing to:

Airworthiness and Engineering Standards Branch
Standards Division
Civil Aviation Safety Authority
GPO Box 2005, Canberra, ACT, 2601

Questions about licensing requirements

Enquiries with regard to the licensing scheme and licence requirements should be directed to

ozone@fpaa.com.au

or in writing, to:

Fire Protection Industry (ODS & SGG) Board
PO Box 1049
Box Hill, VIC, 3128

Questions about the *Ozone Protection and Synthetic Greenhouse Management Act 1989* or the *Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995*

Enquiries with regard to the requirements of the Act or Regulations should be directed to:

The Department of Environment
Ozone Protection and Synthetic Greenhouse Gas Team
Email: Ozone@environment.gov.au
Phone: (02) 6274 1111

Links to documents referenced in this AWB are correct at the time of publication, and are uncontrolled after this date. The responsibility to ensure the link provided is to the referenced document remains the responsibility of the document user.

Appendix A – Department of Environment letter to the Aviation Industry – 5 August 2013

Australian Government

Department of Sustainability, Environment, Water, Population and Communities

Ref: 2013/03191

Dear Sir/Madam

Handling of extinguishing agent in the aviation industry

I am writing to inform you of the position of the Department of Sustainability, Environment, Water, Population and Communities (the Department) in relation to handling of an extinguishing agent used in fire protection equipment by the aviation industry.

Background

Under regulation 302(1) of the *Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995* (the Regulations), it is an offence for a person to handle an extinguishing agent that is, or has been, for use in fire protection equipment unless he or she holds an extinguishing agent handling licence or a special circumstances exemption that covers the handling of the agent. This offence does not apply if the fire protection equipment is or will be installed in an aircraft, a person handles the equipment for the purpose of installing or removing the equipment and that person holds an aircraft maintenance engineer licence under regulation 31 of the *Civil Aviation Regulations 1988* and has achieved the unit of competency PRMPFES43A - Prevent ozone depleting substance and synthetic greenhouse gas emissions.

On 7 August 2012, the Fire Protection Industry (ODS & SGG) Board wrote to the aviation industry indicating that Licensed Aircraft Maintenance Engineers (LAME) and Aircraft Maintenance Engineers (AME) would not need to hold an extinguishing agent handling licence providing they achieved competence in PRMPFES43A or equivalent assessment outcomes at a Civil Aviation Safety Authority (CASA) approved Maintenance Training Organisation or a Registered Training Organisation within 12 months.

Amendments to the Regulations

The Department is in the process of recommending amendments be made to regulation 302(1A)(c) to reflect the change in relevant course codes (for example, from PRMPFES43A to CPPFES2043A) and the change in aircraft maintenance engineer licensing arrangements from regulation 31 of the *Civil Aviation Regulations 1988* to Part 66 of the *Civil Aviation Safety Regulations 1998.*

Further amendments to the Regulations, including clarifying the requirements and training considered sufficient for the purposes of handling an extinguishing agent and the aviation personnel exempted from the general prohibition on handling an extinguishing agent, will be considered during the 2013-2014 financial year. The Department intends on consulting with the aviation industry in relation to these further proposed amendments.

Current position

The 12 month period as provided for by the Fire Protection Industry (ODS & SGG) Board's letter of 7 August 2012 will expire on 7 August 2013. As of this date, the Department expects all persons in the aviation industry who handle an extinguishing agent to hold either an extinguishing agent handling licence or to have achieved competence in PRMPFES43A (now CPPFES2043A) or equivalent assessment outcomes at a CASA approved Maintenance Training Organisation or a Registered Training Organisation.

Appendix A – Department of Environment letter to the Aviation Industry – 5 August 2013

Until further amendments are made to the Regulations (as proposed above) or the Department notifies you, the Department has determined that it will not take any enforcement action in relation to regulation 302(1), where the following applies:

a) the person is a LAME or an AME in the aviation industry; and

b) the person has achieved competence in PRMPFES43A, CPPFES2043A or equivalent assessment outcomes at a CASA approved Maintenance Training Organisation or a Registered Training Organisation.

Should you have any enquiries, please contact the director of the Domestic Operations team, Rachel Short on rachel.short@environment.gov.au or 02 6274 1896.

Yours sincerely

Patrick McInerney
Acting Assistant Secretary
Environment Standards Branch
Environment Quality Division
5 August 2013