

## Standard Change CS-SC108a

### EXCHANGE OF HANDHELD FIRE EXTINGUISHERS FOR HALON-FREE TYPES

#### 1. Purpose

This SC is intended to allow the exchange of handheld fire extinguishers (e.g. halon based) for handheld fire extinguishers that contain halocarbon-free agents.

#### 2. Applicability/Eligibility

This SC is applicable to:

- aeroplanes and rotorcraft that are not complex motor-powered aircraft accommodating up to 6 passengers and with non-pressurised vessels;
- ELA2 aircraft accommodating up to 6 passengers and with non-pressurised vessels.

#### 3. Acceptable methods, techniques, and practices

The following standard contains acceptable data:

- FAA Advisory Circular AC 20-42D, *Hand Fire Extinguishers for use in Aircraft*.

Additionally, the following conditions apply:

- The instructions from the equipment manufacturer have to be followed.
- The equipment is authorised in accordance with ETSO-2C515 *Aircraft Halocarbon Clean Agent Hand-Held Fire Extinguishers*, or equivalent standards.
- The rating (type of fires) of the new fire extinguisher shall be at least equivalent to the rating of the fire extinguisher being replaced.
- The supporting structure of the replaced fire extinguisher shall be used to accommodate the new one. Therefore, the new fire extinguisher shall be of similar dimensions, shape and weight, within a 10 % variation.

#### 4. Limitations

Any limitations defined by the equipment manufacturer apply.

#### 5. Manuals

Amend the AFM with an AFMS that contains or references the equipment instructions for operation, as required.

Amend the Instructions for Continuing Airworthiness (ICAs) to establish maintenance actions/inspections and intervals, as required.

#### 6. Release to service

This SC is not suitable for the release to service of the aircraft by the pilot-owner.

[Issue: STAN/4]

## Standard Change CS-SC109a

### INSTALLATION OF HANDHELD FIRE EXTINGUISHERS

#### 1. Purpose

This SC is for the installation of handheld fire extinguishers on aircraft originally certified without handheld fire extinguishers.

The exchange of handheld fire extinguishers is covered in CS-SC108().

#### 2. Applicability/Eligibility

This SC is applicable to:

- aeroplanes that are not complex motor-powered aircraft accommodating up to 6 passengers and with non-pressurised vessels;
- ELA2 aircraft accommodating up to 6 passengers and with non-pressurised vessels, except rotorcraft.

#### 3. Acceptable methods, techniques, and practices

The following standards contain acceptable data:

- FAA Advisory Circular AC 20-42D *Hand Fire Extinguishers for use in Aircraft*;
- FAA Advisory Circular AC 43.13-2B *Acceptable Methods, Techniques, and Practices - Aircraft Alterations*.

Additionally, the following conditions apply:

- The instructions from the equipment manufacturer have to be followed.
- The equipment is authorised in accordance with ETSO-2C515 *Aircraft Halocarbon Clean Agent Hand-Held Fire Extinguisher*, or equivalent standards.
- The minimum rating of the fire extinguisher shall be U.S.-UL 2B:C or equivalent ratings.
- Location and configuration:
  - The fire extinguisher must be accessible to the pilot and should not interfere with the pilot's view or with the operation of other systems. Therefore, only the following locations are allowed:
    - Locations foreseen by the aircraft manufacturer for that purpose, with structural provisions.
    - Within a cupboard or bin (conspicuously marked to identify its content and facilitate the removal of the equipment). Unless there is a partition to protect the equipment, a placard should be placed on the stowage compartment that contains the equipment. Such a placard should preclude damage to the equipment and the possibility of the equipment being hidden by other articles placed in the

- compartment. An example of placard contents is: 'For soft articles only', 'No stowage', or 'Emergency equipment only'.
- In front of the pilot seat, or if easily reachable, of the co-pilot seat. Not interfering with the seat, pedal or any other equipment or control system, for their full range of operation.
  - Behind the pilot seat. Reachable without turning (and not interfering with the seat).
  - The fire extinguisher should be provided with a quick-release latch (preferably two) attached to a fitting(s).
  - A placard in clear view of the pilot must be installed to indicate the location of the fire extinguisher.
- Attachment to the airframe:
- The fire extinguisher mounting support must be attached by means of fasteners to a rigid, structural part of the airframe such as the structural floor (floor beams, seat tracks or floor panels) or a cupboard. The use of clamps, suction caps or adhesives is not acceptable. It is acceptable to attach the fasteners directly onto floor panels or cupboards made of metallic or composite laminates, or sandwich panels with facings at least 2 mm thick. For panels or facings thinner than 2 mm or made of wood, multiple attachments and a local reinforcement element must be used (sandwich inserts, stainless steel NASM 970C washers or an equivalent aeronautical part, or a doubler).
  - The installation on primary structure elements such as frames, spars or pressurised skins is not allowed.
  - Fasteners and their specifications must be as follows:
    - type as per FAA AC 43.13-2B item 108;
    - solid, with protruding heads;
    - minimum diameter of 5 mm;
    - the attachment installation must be performed with a minimum quantity of 4 fasteners, spaced as far apart as practicable, at a minimum of 4 times the hole diameter (D) between 2 fasteners, and with a minimum distance of 2·D to the fitting or panel edge for metal, and 2.5·D for composites or wood;
    - as far as practical, it is preferable to use existing holes;
    - the bottle must be installed horizontally for better retention, preferably parallel to the wing, and to minimise bending, as close to the airframe attachment as practically possible.
  - Specifications for the secondary retaining lanyard or strap (except if inside a bin or a cupboard):
    - a stainless steel wire of a minimum 2-mm diameter;

- a minimum of 2 attachment points to the bottle and to the airframe (attached at a location different from the fasteners);
- slack allowing for just 1 finger width between the lanyard and the bottle.
- Check of strength and stiffness of the installation:
  - Apply to the fire extinguisher a force of 10 kg upwards, and then forwards or back, as practicable. After the application of the load, the fire extinguisher must remain attached to the supporting structure. A maximum elastic deformation of 2 cm is allowed.
  - Lanyards must be tested in the same way, with fasteners removed.

#### **4. Limitations**

Any limitations defined by the equipment or aircraft manufacturer apply.

This SC is limited to fire extinguishers of a maximum 2.5-kg mass.

#### **5. Manuals**

Amend the AFM with an AFMS that contains or references the equipment instructions for operation, as required.

Amend the Instructions for Continuing Airworthiness (ICAs) to establish maintenance actions/inspections and intervals, as required.

#### **6. Release to service**

This SC is not suitable for the release to service of the aircraft by the pilot-owner.

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