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AIRWORTHINESS

CAUTION

HAND-HELD EXTINGUISHERS

☞ Indicates changes.

☞ This AIC replaces AIC 646 of 99-05-15.

1. PURPOSES

The purpose of this circular is to advise importers, owners, aircraft maintenance organisations and aircraft maintenance engineers of the requirements which hand-held fire extinguishers for use in crew and cabin compartments should comply with and also to give guidance concerning the use of these extinguishers in respect of South African registered civil aircraft.

2. KINDS OF FIRES

For the purpose of this circular fires are divided into the following classes:-

- 2.1 **Class A** - Fires in ordinary combustible materials, for which the quenching and cooling effects of quantities of water, or of solutions containing a large percentage of water, are of prime importance.
- 2.2 **Class B** - Fire in flammable liquids, greases, etc., for which extinguishants having a blanketing effect are essential.
- 2.3 **Class C** - Fires in electrical equipment, for which the use of non-conducting extinguishants is of prime importance.

3. EXTINGUISHANTS APPROPRIATE TO KINDS OF FIRES

3.1 The following extinguishants are acceptable as appropriate to the kinds of fires specified below and defined in the preceding paragraph.

- 3.1.1 Carbon dioxide -Class B or C
- 3.1.2 Water -Class A
- 3.1.3 Vapourising liquids -Class B or C
- 3.1.4 Dry chemicals -Class B or C

4. TOXICITY OF EXTINGUISHANTS

4.1 Hand-held fire extinguishers using an extinguishant classified in a toxicity group 5 or higher are acceptable for use in civil aircraft. Commonly used extinguishers are classified in toxicity groups by the Underwriters Laboratories and South African Bureau of Standards.

- 4.1.1 Bromotrifluoromethane - Group 6
- Bromochlorodifluoromethane - Group 5
- Carbon Dioxide - Group 5

5. **CAPACITIES OF EXTINGUISHERS**

In order to ensure extinguisher portability and to minimise carbon dioxide concentrations it is recommended that the extinguishing agent in each portable installation should not exceed approximately 2 kg for large aircraft and approximately 1 kg for small aircraft.

6. **APPROVED EXTINGUISHERS**

- 6.1 *It has been noted that in many instances unapproved extinguishers are being carried in South African registered aircraft.*
- 6.2 *The use of unapproved extinguishers could result in harm to the occupants of an aircraft from any toxic or other harmful properties inherent in the extinguishant used or from inadvertent release of the extinguishant from the container due to the container being unsuitable for the environments under which aircraft operate.*
- 6.3 *Aircraft owners are, therefore, requested to ensure that only approved extinguishers are fitted to their aircraft.*
- 6.4 *Fire extinguishers approved by the organisations shown below and which meet the requirements described in paragraph 5 above are considered suitable for use in civil aircraft in this country.*

*Underwriters Laboratories
Factory Mutual Laboratories
British Standards Institute
(must meet BS 5423:1987)
South African Bureau of Standards
(must meet SABS 1151:1989)*

Note: *If any doubt exists as regards the suitability of extinguishers, importers, aircraft owners, maintenance organisations may refer the matter to this Authority for the necessary attention.*

7. **GENERAL**

- 7.1 *Hand-held fire extinguishers should be mounted so that they may be put into use quickly. If they are not visible at their mounted position a placard (with letters at least 9 mm high) may be used to indicate their location.*
- 7.2 *When dry chemical extinguishants are discharged they tend to interfere with visibility and if nonconductive, may render electrical contacts inoperative. For these reasons, it is not advisable to use such extinguishants in crew compartments.*

COMMISSIONER FOR CIVIL AVIATION