

Federal Aviation Agency

ADVISORY CIRCULAR



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AIRCRAFT

EFFECTIVE :
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SUBJECT : HAND FIRE EXTINGUISHERS IN TRANSPORT CATEGORY AIRPLANES AND ROTORCRAFT

1. **PURPOSE.** This circular sets forth acceptable means (but not the sole means) of compliance with certain hand fire extinguisher regulations in FAR 25 and FAR 29, and provides related general information.
2. **REGULATIONS AFFECTED**
 - a. FAR 25.851; FAR 25.853(f)
 - b. FAR 29.851; FAR 29.853(f)
3. **ACCEPTABLE MEANS OF COMPLIANCE.**
 - a. **Approved hand fire extinguishers.** Hand fire extinguishers are acceptable under §§ 25.851(a)(1) and 29.851(a)(1) if they have been approved in accordance with § 21.305. On this basis, hand fire extinguishers approved by Underwriters' Laboratories, Factory Mutual Laboratories, and Underwriters' Laboratories of Canada, have been found acceptable.
 - b. **Kinds of fires.** For the purpose of showing compliance with §§ 25.851(a)(2) and 29.851(a)(2), it is acceptable to consider the following classes of fires as likely to occur:
 - (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) **Class B** - Fires in flammable liquids, greases, etc., for which extinguishing agents having a blanketing effect are essential.
 - (3) **Class C** - Fires in electrical equipment, for which the use of nonconducting extinguishing agents is of prime importance.

9/1/65

c. Extinguishing agents appropriate to kinds of fires. The following extinguishing agents are acceptable, under §§ 25.851(a)(2) and 29.851(a)(2), as appropriate to the kinds of fires specified below (and defined in para. 3.b.):

- (1) Carbon Dioxide - Class B or C
- (2) Water - Class A
- (3) Vaporizing Liquids - Class B or C
- (4) Dry Chemicals - Class B or C

d. Location of hand fire extinguishers in passenger compartments. Under §§ 25.851(a)(2), 29.851(a)(2), 25.853(f), and 29.853(f), it is acceptable to install hand fire extinguishers in passenger compartments according to the following criteria:

- (1) In general, locate hand fire extinguishers adjacent to the hazardous areas (i.e., galleys, accessible baggage or cargo compartments, electrical equipment racks, etc.) they are intended to protect.
- (2) If no clearly defined hazardous area exists, locate the hand fire extinguishers as follows:
 - (i) When one extinguisher is used, locate it at the flight attendants station or, if there is no flight attendant, at the passenger entrance door.
 - (ii) When two or more extinguishers are used, locate one at each end of the passenger compartment and space the remainder uniformly along its length.
- (3) Mount hand fire extinguishers so that they may be put to use quickly. If they are not visible at their mounted position, a placard (with letters at least 3/8 inch high) may be used to indicate their location.

e. Extinguishing agent toxicity. Hand fire extinguishers using an extinguishing agent that has a rating in toxicity group 5 or higher are acceptable under §§ 25.851(a)(3) and 29.851(a)(3). Hand fire extinguishers using an extinguishing agent that has a rating in toxicity group 4 or lower are also acceptable if sufficient ventilation is available to prevent hazardous exposure. Commonly used extinguishing agents are rated in toxicity groups (by the Underwriters' Laboratories) as follows:

Bromotrifluoromethane-----Group 6
Bromochloromethane-----Group 3
Carbon Tetrachloride-----Group 3
Carbon Dioxide-----Group 5
Dibromodifluoromethane-----Group 4
Methyl Bromide-----Group 2

4. GENERAL INFORMATION.

- a. Corrosion by extinguishing agents. Carbon dioxide is not corrosive and will not damage food or fabric. Water itself is not corrosive, but may be rendered corrosive by the addition of anti-freeze agents.
- b. Winterizing of hand fire extinguishers. Hand fire extinguishers approved by the organizations listed in para. 3.a. are winterized for satisfactory operation down to -40 degrees F.
- c. Disadvantages of dry chemical extinguishing agents. When dry chemical extinguishing agents 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 agents in crew compartments.


George S. Moore
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