CIVIL AERONAUTICS MANUAL 3

U. S. Department of Commerce Civil Aeronautics Administration

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Supplement No. 8 March 5, 1951

SUBJECT: Errata for CAM 3.388-1, Heater Isolation, contained in Supplement No. 5, dated March 8, 1950

This supplement transmits a revision sheet to Supplement No. 5 dated March 8, 1950 to Civil Aeronautics Manual 3. The revision consists of minor changes to the figure presented in CAM 3.388-1, Heater Isolation.

Please insert the attached sheet in lieu of the one numbered "3.388" and "3.388-1 (c)," dated March 8, 1950, in Supplement No. 5.

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for E. S. Hensley
Director, Office of
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Attachment

Distribution: Air 1, 2, 3, 11, 13, 14, 40 all tabs,
40-B, 40-C, 40-D, 40-E, 40-F-1

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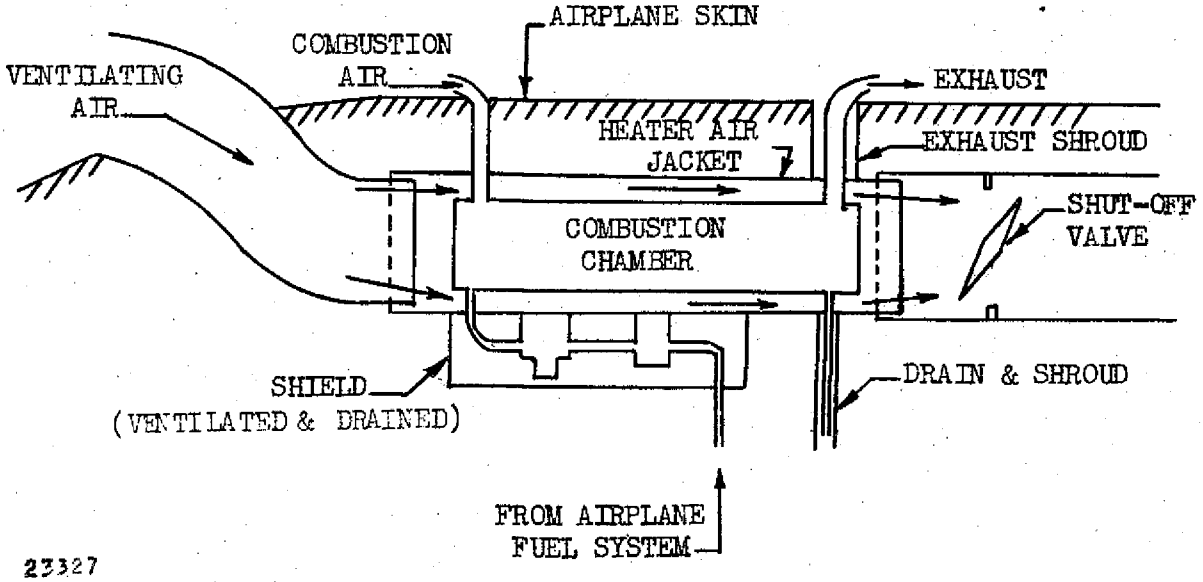
"CAR 3.388 Fire precautions. (a) Cabin interiors. Only materials which are flash-resistant shall be used. In compartments where smoking is to be permitted, the materials of the cabin lining, floors, upholstery, and furnishings shall be flame-resistant. Such compartments shall be equipped with an adequate number of self-contained ash trays. All other compartments shall be placarded against smoking.

"(b) Combustion heaters. Gasoline operated combustion heater installations shall comply with applicable parts of the power-plant installation requirements covering fire hazards and precautions. All applicable requirements concerning fuel tanks, lines, and exhaust systems shall be considered."

3.388-1 HEATER ISOLATION. (CAA policies which apply to section 3.388 (b), previously 3.38132).

(a) Under CAR 3.388 (b) and 3.623, heaters should be isolated from the remainder of the airplane by means of a fireproof shield. However, this need not necessarily mean a complete shield around the entire heater unit (although this would be satisfactory) since in many heater designs, a fireproof air jacket largely surrounds the flame chamber. Thus, the heater design itself practically provides a steel shield between the combustion unit and the remainder of the airplane. In such cases, it should suffice to provide isolation for the fuel system components mounted on the heater and for the heater exhaust and combustion chamber drains.

(b) The following schematic sketch shows an example of an installation which should be satisfactory:



The shut-off valve shown in the sketch should be provided if there are fuel system components within the ventilating air shroud which may be subject to leakage or failure. In such cases, that portion of the ventilating air duct up to the valve, as well as the valve itself, should be of fire resistant construction and the valve should provide as flame tight a seal as possible. If the fuel system is so arranged that there are no fittings or connections within the ventilating air shroud, the downstream air shut-off valve and fire resistant duct between the heater and the valve may be dispensed with.

(c) As regards shrouds for the combustion chamber drain lines, the necessity for these will generally depend upon the location of the drain in the heater. If the drain outlet from the combustion chamber is so located that products of combustion can issue through the drain line, it will no doubt become hot and require isolation. However, drains are sometimes connected in such a manner that they do not carry exhaust gases and remain relatively cool. In such cases, shrouds are not necessary.

3.388-2 FIRE-DETECTOR AND EXTINGUISHER EQUIPMENT. (CAA policies which apply to section 3.388 (b), previously 3.38132).

(a) For nontransport category airplanes equipment of this type is not required. If such equipment is installed and it is shown to provide equivalent safety to the use of fireproof isolation, it may be considered a suitable alternative for fireproof isolation provisions discussed in CAM 3.388-1 (b). In such cases, the detection and extinguishing provisions should comply with the requirements for transport category airplanes; that is, detectors and extinguishers should be provided wherever potential sources of fuel leakage and sources of ignition are in close proximity.

(b) In the sketch in CAM 3.388-1 (b) the space within the shield would require such protection. In addition, detectors and extinguisher nozzles should be installed in the ventilating air passages of the heater if this chamber contains fuel system fittings or connections that may be subject to leakage.

(c) Hand fire extinguishers should be considered equivalent to a fixed fire extinguisher installation only when the heater is located in such a manner that it is readily accessible to the crew and when all fire zones in the installation can easily be reached with a hand extinguisher.

(d) All extinguishers may also be dispensed with when the heater is so shielded and located that a fire could be permitted to burn itself out without danger of damage to any important structural members or otherwise endangering the safety of the airplane.