

(ii) Keep the heater off until re-started by the crew.

(3) There must be means to warn the crew when any heater whose heat output is essential for safe operation has been shut off by the automatic means prescribed in paragraph (e)(1) of this section.

(f) *Air intakes.* Each combustion and ventilating air intake must be located so that no flammable fluids or vapors can enter the heater system under any operating condition—

- (1) During normal operation; or
- (2) As a result of the malfunctioning of any other component.

(g) *Heater exhaust.* Heater exhaust systems must meet the provisions of §§ 25.1121 and 25.1123. In addition, there must be provisions in the design of the heater exhaust system to safely expel the products of combustion to prevent the occurrence of—

- (1) Fuel leakage from the exhaust to surrounding compartments;
- (2) Exhaust gas impingement on surrounding equipment or structure;
- (3) Ignition of flammable fluids by the exhaust, if the exhaust is in a compartment containing flammable fluid lines; and
- (4) Restriction by the exhaust of the prompt relief of backfires that, if so restricted, could cause heater failure.

(h) *Heater fuel systems.* Each heater fuel system must meet each power-plant fuel system requirement affecting safe heater operation. Each heater fuel system component within the ventilating airstream must be protected by shrouds so that no leakage from those components can enter the ventilating airstream.

(i) *Drains.* There must be means to safely drain fuel that might accumulate within the combustion chamber or the heat exchanger. In addition—

- (1) Each part of any drain that operates at high temperatures must be protected in the same manner as heater exhausts; and
- (2) Each drain must be protected from hazardous ice accumulation under any operating condition.

[Doc. No. 5066, 29 FR 18291, Dec. 24 1964, as amended by Amdt. 25-11, 32 FR 6912, May 5, 1967; Amdt. 25-23, 35 FR 5676, Apr. 8, 1970]

§ 25.863 Flammable fluid fire protection.

(a) In each area where flammable fluids or vapors might escape by leakage of a fluid system, there must be means to minimize the probability of ignition of the fluids and vapors, and the resultant hazards if ignition does occur.

(b) Compliance with paragraph (a) of this section must be shown by analysis or tests, and the following factors must be considered:

- (1) Possible sources and paths of fluid leakage, and means of detecting leakage.
- (2) Flammability characteristics of fluids, including effects of any combustible or absorbing materials.
- (3) Possible ignition sources, including electrical faults, overheating of equipment, and malfunctioning of protective devices.
- (4) Means available for controlling or extinguishing a fire, such as stopping flow of fluids, shutting down equipment, fireproof containment, or use of extinguishing agents.
- (5) Ability of airplane components that are critical to safety of flight to withstand fire and heat.

(c) If action by the flight crew is required to prevent or counteract a fluid fire (e.g., equipment shutdown or actuation of a fire extinguisher) quick acting means must be provided to alert the crew.

(d) Each area where flammable fluids or vapors might escape by leakage of a fluid system must be identified and defined.

[Amdt. 25-23, 35 FR 5676, Apr. 8, 1970, as amended by Amdt. 25-46, 43 FR 50597, Oct. 30, 1978]

§ 25.865 Fire protection of flight controls, engine mounts, and other flight structure.

Essential flight controls, engine mounts, and other flight structures located in designated fire zones or in adjacent areas which would be subjected to the effects of fire in the fire zone must be constructed of fireproof material or shielded so that they are capable of withstanding the effects of fire.

[Amdt. 25-23, 35 FR 5676, Apr. 8, 1970]