

into any compartment occupied by the crew or passengers.

(4) It must have ventilation and draft controlled so that the extinguishing agent provided can control any fire that may start in the compartment.

(5) It must be lined with fire-resistant material, except that additional service lining of flame-resistant material may be used.

(e) *Class D.* Cargo and baggage compartments are classified in the “D” category if they are so designed and constructed that a fire occurring therein will be completely confined without endangering the safety of the airplane or the occupants. Each Class D compartment must comply with the following:

(1) It must have a means to exclude hazardous quantities of smoke, flames, or noxious gases from entering any compartment occupied by the crew or passengers.

(2) Ventilation and drafts must be controlled within each compartment so that any fire likely to occur in the compartment will not progress beyond safe limits.

(3) It must be completely lined with fire-resistant material.

(4) Consideration must be given to the effect of heat within the compartment on adjacent critical parts of the airplane.

(f) *Class E.* On airplanes used for the carriage of cargo only, the cabin area may be classified as a Class “E” compartment. Each Class E compartment must comply with the following:

(1) It must be completely lined with fire-resistant material.

(2) It must have a separate system of an approved type smoke or fire detector to give warning at the pilot or flight engineer station.

(3) It must have a means to shut off the ventilating air flow to or within the compartment and the controls for that means must be accessible to the flight crew in the crew compartment.

(4) It must have a means to exclude hazardous quantities of smoke, flames, or noxious gases from entering the flight crew compartment.

(5) Required crew emergency exits must be accessible under all cargo loading conditions.

§ 121.223 Proof of compliance with § 121.221.

Compliance with those provisions of § 121.221 that refer to compartment accessibility, the entry of hazardous quantities of smoke or extinguishing agent into compartments occupied by the crew or passengers, and the dissipation of the extinguishing agent in Class “C” compartments must be shown by tests in flight. During these tests it must be shown that no inadvertent operation of smoke or fire detectors in other compartments within the airplane would occur as a result of fire contained in any one compartment, either during the time it is being extinguished, or thereafter, unless the extinguishing system floods those compartments simultaneously.

§ 121.225 Propeller deicing fluid.

If combustible fluid is used for propeller deicing, the certificate holder must comply with § 121.255.

§ 121.227 Pressure cross-feed arrangements.

(a) Pressure cross-feed lines may not pass through parts of the airplane used for carrying persons or cargo unless—

(1) There is a means to allow crewmembers to shut off the supply of fuel to these lines; or

(2) The lines are enclosed in a fuel and fume-proof enclosure that is ventilated and drained to the exterior of the airplane.

However, such an enclosure need not be used if those lines incorporate no fittings on or within the personnel or cargo areas and are suitably routed or protected to prevent accidental damage.

(b) Lines that can be isolated from the rest of the fuel system by valves at each end must incorporate provisions for relieving excessive pressures that may result from exposure of the isolated line to high temperatures.

§ 121.229 Location of fuel tanks.

(a) Fuel tanks must be located in accordance with § 121.255.

(b) No part of the engine nacelle skin that lies immediately behind a major

air outlet from the engine compartment may be used as the wall of an integral tank.

(c) Fuel tanks must be isolated from personnel compartments by means of fume- and fuel-proof enclosures.

§ 121.231 Fuel system lines and fittings.

(a) Fuel lines must be installed and supported so as to prevent excessive vibration and so as to be adequate to withstand loads due to fuel pressure and accelerated flight conditions.

(b) Lines connected to components of the airplanes between which there may be relative motion must incorporate provisions for flexibility.

(c) Flexible connections in lines that may be under pressure and subject to axial loading must use flexible hose assemblies rather than hose clamp connections.

(d) Flexible hose must be of an acceptable type or proven suitable for the particular application.

§ 121.233 Fuel lines and fittings in designated fire zones.

Fuel lines and fittings in each designated fire zone must comply with § 121.259.

§ 121.235 Fuel valves.

Each fuel valve must—

(a) Comply with § 121.257;

(b) Have positive stops or suitable index provisions in the “on” and “off” positions; and

(c) Be supported so that loads resulting from its operation or from accelerated flight conditions are not transmitted to the lines connected to the valve.

§ 121.237 Oil lines and fittings in designated fire zones.

Oil line and fittings in each designated fire zone must comply with § 121.259.

§ 121.239 Oil valves.

(a) Each oil valve must—

(1) Comply with § 121.257;

(2) Have positive stops or suitable index provisions in the “on” and “off” positions; and

(3) Be supported so that loads resulting from its operation or from acceler-

ated flight conditions are not transmitted to the lines attached to the valve.

(b) The closing of an oil shutoff means must not prevent feathering the propeller, unless equivalent safety provisions are incorporated.

§ 121.241 Oil system drains.

Accessible drains incorporating either a manual or automatic means for positive locking in the closed position, must be provided to allow safe drainage of the entire oil system.

§ 121.243 Engine breather lines.

(a) Engine breather lines must be so arranged that condensed water vapor that may freeze and obstruct the line cannot accumulate at any point.

(b) Engine breathers must discharge in a location that does not constitute a fire hazard in case foaming occurs and so that oil emitted from the line does not impinge upon the pilots’ windshield.

(c) Engine breathers may not discharge into the engine air induction system.

§ 121.245 Fire walls.

Each engine, auxiliary power unit, fuel-burning heater, or other item of combustion equipment that is intended for operation in flight must be isolated from the rest of the airplane by means of firewalls or shrouds, or by other equivalent means.

§ 121.247 Fire-wall construction.

Each fire wall and shroud must—

(a) Be so made that no hazardous quantity of air, fluids, or flame can pass from the engine compartment to other parts of the airplane;

(b) Have all openings in the fire wall or shroud sealed with close-fitting fireproof grommets, bushings, or firewall fittings;

(c) Be made of fireproof material; and

(d) Be protected against corrosion.

§ 121.249 Cowling.

(a) Cowling must be made and supported so as to resist the vibration inertia, and air loads to which it may be normally subjected.

(b) Provisions must be made to allow rapid and complete drainage of the