

or more engines and holds required fuel reserves continually throughout each flight.

(c) Paragraph (b) of this section does not apply to a fuel tank if means are provided to mitigate the effects of an ignition of fuel vapors within that fuel tank such that no damage caused by an ignition will prevent continued safe flight and landing.

(d) Critical design configuration control limitations (CDCCL), inspections, or other procedures must be established, as necessary, to prevent development of ignition sources within the fuel tank system pursuant to paragraph (a) of this section, to prevent increasing the flammability exposure of the tanks above that permitted under paragraph (b) of this section, and to prevent degradation of the performance and reliability of any means provided according to paragraphs (a) or (c) of this section. These CDCCL, inspections, and procedures must be included in the Airworthiness Limitations section of the instructions for continued airworthiness required by § 25.1529. Visible means of identifying critical features of the design must be placed in areas of the airplane where foreseeable maintenance actions, repairs, or alterations may compromise the critical design configuration control limitations (e.g., color-coding of wire to identify separation limitation). These visible means must also be identified as CDCCL.

[Doc. No. 1999-6411, 66 FR 23129, May 7, 2001, as amended at Doc. No. FAA-2005-22997, 73 FR 42494, July 21, 2008]

#### FUEL SYSTEM COMPONENTS

##### § 25.991 Fuel pumps.

(a) *Main pumps.* Each fuel pump required for proper engine operation, or required to meet the fuel system requirements of this subpart (other than those in paragraph (b) of this section, is a main pump. For each main pump, provision must be made to allow the bypass of each positive displacement fuel pump other than a fuel injection pump (a pump that supplies the proper flow and pressure for fuel injection when the injection is not accomplished in a carburetor) approved as part of the engine.

(b) *Emergency pumps.* There must be emergency pumps or another main pump to feed each engine immediately after failure of any main pump (other than a fuel injection pump approved as part of the engine).

##### § 25.993 Fuel system lines and fittings.

(a) Each fuel line must be installed and supported to prevent excessive vibration and to withstand loads due to fuel pressure and accelerated flight conditions.

(b) Each fuel line connected to components of the airplane between which relative motion could exist must have provisions for flexibility.

(c) Each flexible connection in fuel lines that may be under pressure and subjected to axial loading must use flexible hose assemblies.

(d) Flexible hose must be approved or must be shown to be suitable for the particular application.

(e) No flexible hose that might be adversely affected by exposure to high temperatures may be used where excessive temperatures will exist during operation or after engine shut-down.

(f) Each fuel line within the fuselage must be designed and installed to allow a reasonable degree of deformation and stretching without leakage.

[Doc. No. 5066, 29 FR 18291, Dec. 24, 1964, as amended by Amdt. 25-15, 32 FR 13266, Sept. 20, 1967]

##### § 25.994 Fuel system components.

Fuel system components in an engine nacelle or in the fuselage must be protected from damage which could result in spillage of enough fuel to constitute a fire hazard as a result of a wheels-up landing on a paved runway.

[Amdt. 25-57, 49 FR 6848, Feb. 23, 1984]

##### § 25.995 Fuel valves.

In addition to the requirements of § 25.1189 for shutoff means, each fuel valve must—

(a) [Reserved]

(b) Be supported so that no loads resulting from their operation or from