Federal Aviation Administration, DOT

§ 25.955 Fuel flow.

(a) Each fuel system must provide at least 100 percent of the fuel flow required under each intended operating condition and maneuver. Compliance must be shown as follows:

(d) Each fuel system for a turbine engine powered airplane must meet the applicable fuel venting requirements of part 34 of this chapter.


§ 25.952 Fuel system analysis and test.

(a) Proper fuel system functioning under all probable operating conditions must be shown by analysis and those tests found necessary by the Administrator. Tests, if required, must be made using the airplane fuel system or a test article that reproduces the operating characteristics of the portion of the fuel system to be tested.

(b) The likely failure of any heat exchanger using fuel as one of its fluids may not result in a hazardous condition.

[Amdt. 25–40, 42 FR 15043, Mar. 17, 1977]

§ 25.953 Fuel system independence.

Each fuel system must meet the requirements of §25.903(b) by—

(a) Allowing the supply of fuel to each engine through a system independent of each part of the system supplying fuel to any other engine; or

(b) Any other acceptable method.

§ 25.954 Fuel system lightning protection.

The fuel system must be designed and arranged to prevent the ignition of fuel vapor within the system by—

(a) Direct lightning strikes to areas having a high probability of stroke attachment;

(b) Swept lightning strokes to areas where swept strokes are highly probable; and

(c) Corona and streamering at fuel vent outlets.

[Amdt. 25–14, 32 FR 11629, Aug. 11, 1967]

§ 25.955 Fuel flow.

(a) Each fuel system must provide at least 100 percent of the fuel flow required under each intended operating condition and maneuver. Compliance must be shown as follows:

VerDate Mar<15>2010 11:30 Mar 22, 2012 Jkt 226044 PO 00000 Frm 00489 Fmt 8010 Sfmt 8010 Y:\SGML\226044.XXX 226044pmangrum on DSK3VPTVN1PROD with CFR
§ 25.957  Flow between interconnected tanks.

If fuel can be pumped from one tank to another in flight, the fuel tank vents and the fuel transfer system must be designed so that no structural damage to the tanks can occur because of overfilling.

§ 25.959  Unusable fuel supply.

The unusable fuel quantity for each fuel tank and its fuel system components must be established at not less than the quantity at which the first evidence of engine malfunction occurs under the most adverse fuel feed condition for all intended operations and flight maneuvers involving fuel feeding from that tank. Fuel system component failures need not be considered.


§ 25.961  Fuel system hot weather operation.

(a) The fuel system must perform satisfactorily in hot weather operation. This must be shown by showing that the fuel system from the tank outlets to each engine is pressurized, under all intended operations, so as to prevent vapor formation, or must be shown by climbing from the altitude of the airport elected by the applicant to the maximum altitude established as an operating limitation under §25.1527. If a climb test is elected, there may be no evidence of vapor lock or other malfunctioning during the climb test conducted under the following conditions:

1. For reciprocating engine powered airplanes, the engines must operate at maximum continuous power, except that takeoff power must be used for the altitudes from 1,000 feet below the critical altitude through the critical altitude. The time interval during which takeoff power is used may not be less than the takeoff time limitation.
2. For turbine engine powered airplanes, the engines must operate at takeoff power for the time interval selected for showing the takeoff flight path, and at maximum continuous power for the rest of the climb.
3. The weight of the airplane must be the weight with full fuel tanks, minimum crew, and the ballast necessary to maintain the center of gravity within allowable limits.
4. The climb airspeed may not exceed—
   (1) For reciprocating engine powered airplanes, the maximum airspeed established for climbing from takeoff to the maximum operating altitude with the airplane in the following configuration:
      (A) Landing gear retracted.
      (B) Wing flaps in the most favorable position.