

§ 23.1335

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EFFECTIVE DATE NOTE: By Amdt. 23-62, 76 FR 75761, Dec. 2, 2011, §23.1331 was amended by revising paragraph (c), effective Jan. 31, 2012. For the convenience of the user, the revised text is set forth as follows:

§ 23.1331 Instruments using a power source.

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(c) For certification for Instrument Flight Rules (IFR) operations and for the heading, altitude, airspeed, and attitude, there must be at least:

(1) Two independent sources of power (not driven by the same engine on multiengine airplanes), and a manual or an automatic means to select each power source; or

(2) A separate display of parameters for heading, altitude, airspeed, and attitude that has a power source independent from the airplane's primary electrical power system.

§ 23.1335 Flight director systems.

If a flight director system is installed, means must be provided to indicate to the flight crew its current mode of operation. Selector switch position is not acceptable as a means of indication.

[Amdt. 23-20, 42 FR 36969, July 18, 1977]

§ 23.1337 Powerplant instruments installation.

(a) Instruments and instrument lines.

(1) Each powerplant and auxiliary power unit instrument line must meet the requirements of §23.993.

(2) Each line carrying flammable fluids under pressure must—

(i) Have restricting orifices or other safety devices at the source of pressure to prevent the escape of excessive fluid if the line fails; and

(ii) Be installed and located so that the escape of fluids would not create a hazard.

(3) Each powerplant and auxiliary power unit instrument that utilizes flammable fluids must be installed and located so that the escape of fluid would not create a hazard.

(b) Fuel quantity indication. There must be a means to indicate to the flightcrew members the quantity of usable fuel in each tank during flight. An indicator calibrated in appropriate units and clearly marked to indicate those units must be used. In addition:

(1) Each fuel quantity indicator must be calibrated to read "zero" during

level flight when the quantity of fuel remaining in the tank is equal to the unusable fuel supply determined under §23.959(a);

(2) Each exposed sight gauge used as a fuel quantity indicator must be protected against damage;

(3) Each sight gauge that forms a trap in which water can collect and freeze must have means to allow drainage on the ground;

(4) There must be a means to indicate the amount of usable fuel in each tank when the airplane is on the ground (such as by a stick gauge);

(5) Tanks with interconnected outlets and airspaces may be considered as one tank and need not have separate indicators; and

(6) No fuel quantity indicator is required for an auxiliary tank that is used only to transfer fuel to other tanks if the relative size of the tank, the rate of fuel transfer, and operating instructions are adequate to—

(i) Guard against overflow; and

(ii) Give the flight crewmembers prompt warning if transfer is not proceeding as planned.

(c) Fuel flowmeter system. If a fuel flowmeter system is installed, each metering component must have a means to by-pass the fuel supply if malfunctioning of that component severely restricts fuel flow.

(d) Oil quantity indicator. There must be a means to indicate the quantity of oil in each tank—

(1) On the ground (such as by a stick gauge); and

(2) In flight, to the flight crew members, if there is an oil transfer system or a reserve oil supply system.

[Doc. No. 4080, 29 FR 17955, Dec. 18, 1964, as amended by Amdt. 23-7, 34 FR 13096, Aug. 13, 1969; Amdt. 23-18, 42 FR 15042, Mar. 17, 1977; Amdt. 23-43, 58 FR 18976, Apr. 9, 1993; Amdt. 23-51, 61 FR 5138, Feb. 9, 1996; Amdt. 23-49, 61 FR 5169, Feb. 9, 1996]

ELECTRICAL SYSTEMS AND EQUIPMENT

§ 23.1351 General.

(a) Electrical system capacity. Each electrical system must be adequate for the intended use. In addition—

(1) Electric power sources, their transmission cables, and their associated control and protective devices, must be able to furnish the required