

**§ 4b.613** Powerplant instruments--(a) Instrument lines. (1) Powerplant instrument lines carrying flammable fluids or gases under pressure shall be provided with restricted orifices or equivalent safety devices at the source of the pressure to prevent the escape of excessive fluid or gas in case of line failure.

(2) The provisions of §§ 4b.432 and 4b.433 shall be made applicable to power-plant instrument lines.

(b) Fuel quantity indicator. Means shall be provided to indicate to the flight crew the quantity in gallons or equivalent units of usable fuel in each tank during flight. The following shall apply.

(1) Tanks, the outlets and air spaces of which are interconnected, shall be considered as one tank for the purpose of providing separate indicators.

(2) Exposed sight gauges shall be protected against damage.

(3) Fuel quantity indicators shall be calibrated to read zero during level flight when the quantity of fuel remaining in the tank is equal to the unusable fuel supply as defined by § 4b.416 (see §4b.736) .

(c) Fuel flowmeter system. When a flowmeter system is installed, the metering component shall include a means for by-passing the fuel supply to the event that malfunctioning of the metering component results in a severe restriction to fuel flow.

(d) Oil quantity indicator. (1) A stick gauge or other equivalent means shall be provided to indicate the quantity of oil in each tank. (See § 4b.735.)

(2) If an oil transfer system or a reserve oil supply system is installed, means shall be provided to indicate to the crew during flight the quantity of oil in each tank.