

## § 27.1351

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

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

(b) *Fuel quantity indicator.* Each fuel quantity indicator must be installed to clearly indicate to the flight crew the quantity of fuel in each tank in flight. 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 § 27.959;

(2) When two or more tanks are closely interconnected by a gravity feed system and vented, and when it is impossible to feed from each tank separately, at least one fuel quantity indicator must be installed; and

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

(c) *Fuel flowmeter system.* If a fuel flowmeter system is installed, each metering component must have a means for bypassing the fuel supply if malfunction of that component severely restricts fuel flow.

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

(1) On the ground (including during the filling of each tank); and

(2) In flight, if there is an oil transfer system or reserve oil supply system.

(e) Rotor drive system transmissions and gearboxes utilizing ferromagnetic materials must be equipped with chip detectors designed to indicate the presence of ferromagnetic particles resulting from damage or excessive wear. Chip detectors must—

(1) Be designed to provide a signal to the device required by § 27.1305(v) and be provided with a means to allow crewmembers to check, in flight, the function of each detector electrical circuit and signal.

(2) [Reserved]

(Secs. 313(a), 601, and 603, 72 Stat. 752, 775, 49 U.S.C. 1354(a), 1421, and 1423; sec. 6(c) 49 U.S.C. 1655(c))

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### ELECTRICAL SYSTEMS AND EQUIPMENT

#### § 27.1351 General.

(a) *Electrical system capacity.* Electrical equipment must be adequate for its 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 power at the proper voltage to each load circuit essential for safe operation; and

(2) Compliance with paragraph (a)(1) of this section must be shown by an electrical load analysis, or by electrical measurements that take into account the electrical loads applied to the electrical system, in probable combinations and for probable durations.

(b) *Function.* For each electrical system, the following apply:

(1) Each system, when installed, must be—

(i) Free from hazards in itself, in its method of operation, and in its effects on other parts of the rotorcraft; and

(ii) Protected from fuel, oil, water, other detrimental substances, and mechanical damage.

(2) Electric power sources must function properly when connected in combination or independently.

(3) No failure or malfunction of any source may impair the ability of any remaining source to supply load circuits essential for safe operation.

(4) Each electric power source control must allow the independent operation of each source.

(c) *Generating system.* There must be at least one generator if the system supplies power to load circuits essential for safe operation. In addition—

(1) Each generator must be able to deliver its continuous rated power;

(2) Generator voltage control equipment must be able to dependably regulate each generator output within rated limits;