§ 27.1459 Flight data recorders.

(a) Each flight recorder required by the operating rules of Subchapter G of this chapter must be installed so that:

(1) It is supplied with airspeed, altitude, and directional data obtained from sources that meet the accuracy requirements of §§ 27.1323, 27.1325, and 27.1327 of this part, as applicable;

(2) The vertical acceleration sensor is rigidly attached, and located longitudinally within the approved center of gravity limits of the rotorcraft;

(3)(i) It receives its electrical power from the bus that provides the maximum reliability for operation of the flight data recorder without jeopardizing service to essential or emergency loads.

(ii) It remains powered for as long as possible without jeopardizing emergency operation of the rotorcraft.

(4) There is an aural or visual means for preflight checking of the recorder for proper recording of data in the storage medium;

(5) Except for recorders powered solely by the engine-driven electrical generator system, there is an automatic means to simultaneously stop a recorder that has a data erasure feature and prevent each erasure feature from functioning, within 10 minutes after any crash impact; and

(6) Whether the cockpit voice recorder and digital flight data recorder are installed in separate boxes or in a combination unit, no single electrical failure external to the recorder may disable both the cockpit voice recorder and the digital flight data recorder.

(b) Each nonejectable recorder container must be located and mounted so as to minimize the probability of container rupture resulting from crash impact and subsequent damage to the record from fire.

(c) A correlation must be established between the flight recorder readings of airspeed, altitude, and heading and the corresponding readings (taking into account correction factors) of the first pilot’s instruments. This correlation must cover the airspeed range over which the aircraft is to be operated, the range of altitude to which the aircraft is limited, and 360 degrees of heading. Correlation may be established on the ground as appropriate.

(d) Each recorder container must:

(1) Be either bright orange or bright yellow;

(2) Have a reflective tape affixed to its external surface to facilitate its location under water; and

(3) Have an underwater locating device, when required by the operating rules of this chapter, on or adjacent to the container which is secured in such a manner that they are not likely to be separated during crash impact.

(e) When both a cockpit voice recorder and a flight data recorder are required by the operating rules, one combination unit may be installed, provided that all other requirements of

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§ 27.1505 Airspeed limitations: general.
(a) An operating speed range must be established.
(b) When airspeed limitations are a function of weight, weight distribution, altitude, rotor speed, power, or other factors, airspeed limitations corresponding with the critical combinations of these factors must be established.

§ 27.1505 Never-exceed speed.
(a) The never-exceed speed, $V_{NE}$, must be established so that it is—
(1) Not less than 40 knots (CAS); and
(2) Not more than the lesser of—
(i) 0.9 times the maximum forward speeds established under §27.309;
(ii) 0.9 times the maximum speed shown under §§27.251 and 27.629; or
(iii) 0.9 times the maximum speed substantiated for advancing blade tip mach number effects.
(b) $V_{NE}$ may vary with altitude, r.p.m., temperature, and weight, if—
(1) No more than two of these variables (or no more than two instruments integrating more than one of these variables) are used at one time; and
(2) The ranges of these variables (or of the indications on instruments integrating more than one of these variables) are large enough to allow an operationally practical and safe variation of $V_{NE}$.
(c) For helicopters, a stabilized power-off $V_{NE}$ denoted as $V_{NE} (power-off)$ may be established at a speed less than $V_{NE}$ established pursuant to paragraph (a) of this section, if the following conditions are met:
(1) $V_{NE} (power-off)$ is not less than a speed midway between the power-on $V_{NE}$ and the speed used in meeting the requirements of—
(i) §27.65(c) for single engine helicopters; and