

## § 27.49

## 14 CFR Ch. I (1–1–19 Edition)

(b) The performance must correspond to the engine power available under the particular ambient atmospheric conditions, the particular flight condition, and the relative humidity specified in paragraphs (d) or (e) of this section, as appropriate.

(c) The available power must correspond to engine power, not exceeding the approved power, less—

(1) Installation losses; and

(2) The power absorbed by the accessories and services appropriate to the particular ambient atmospheric conditions and the particular flight condition.

(d) For reciprocating engine-powered rotorcraft, the performance, as affected by engine power, must be based on a relative humidity of 80 percent in a standard atmosphere.

(e) For turbine engine-powered rotorcraft, the performance, as affected by engine power, must be based on a relative humidity of—

(1) 80 percent, at and below standard temperature; and

(2) 34 percent, at and above standard temperature plus 50 degrees F. Between these two temperatures, the relative humidity must vary linearly.

(f) For turbine-engine-powered rotorcraft, a means must be provided to permit the pilot to determine prior to takeoff that each engine is capable of developing the power necessary to achieve the applicable rotorcraft performance prescribed in this subpart.

(Secs. 313(a), 601, 603, 604, and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, 1424, and 1425); and sec. 6(c) of the Dept. of Transportation Act (49 U.S.C. 1655(c)))

[Amdt. 27–14, 43 FR 2324, Jan. 16, 1978, as amended by Amdt. 27–21, 49 FR 44432, Nov. 6, 1984]

### § 27.49 Performance at minimum operating speed.

(a) For helicopters—

(1) The hovering ceiling must be determined over the ranges of weight, altitude, and temperature for which certification is requested, with—

(i) Takeoff power;

(ii) The landing gear extended; and

(iii) The helicopter in-ground effect at a height consistent with normal takeoff procedures; and

(2) The hovering ceiling determined under paragraph (a)(1) of this section must be at least—

(i) For reciprocating engine powered helicopters, 4,000 feet at maximum weight with a standard atmosphere;

(ii) For turbine engine powered helicopters, 2,500 feet pressure altitude at maximum weight at a temperature of standard plus 22 °C (standard plus 40 °F).

(3) The out-of-ground effect hovering performance must be determined over the ranges of weight, altitude, and temperature for which certification is requested, using takeoff power.

(b) For rotorcraft other than helicopters, the steady rate of climb at the minimum operating speed must be determined over the ranges of weight, altitude, and temperature for which certification is requested, with—

(1) Takeoff power; and

(2) The landing gear extended.

[Amdt. 27–44, 73 FR 10998, Feb. 29, 2008]

### § 27.51 Takeoff.

The takeoff, with takeoff power and r.p.m. at the most critical center of gravity, and with weight from the maximum weight at sea level to the weight for which takeoff certification is requested for each altitude covered by this section—

(a) May not require exceptional piloting skill or exceptionally favorable conditions throughout the ranges of altitude from standard sea level conditions to the maximum altitude for which takeoff and landing certification is requested, and

(b) Must be made in such a manner that a landing can be made safely at any point along the flight path if an engine fails. This must be demonstrated up to the maximum altitude for which takeoff and landing certification is requested or 7,000 feet density altitude, whichever is less.

[Amdt. 27–44, 73 FR 10999, Feb. 29, 2008]

### § 27.65 Climb: all engines operating.

(a) For rotorcraft other than helicopters—

(1) The steady rate of climb, at  $V_Y$ , must be determined—

(i) With maximum continuous power on each engine;