

- (6) Pressure of—
 - (i) Fuel at the fuel inlet;
 - (ii) Oil at a location specified by the applicant;
 - (iii) Induction air at the inlet face of a supersonic engine, including steady state operation and transient overpressure and time allowed; and
 - (iv) Hydraulic fluid.
- (7) Accessory drive torque and overhang moment.
- (8) Component life.
- (9) Fuel filtration.
- (10) Oil filtration.
- (11) Bleed air.
- (12) The number of start-stop stress cycles approved for each rotor disc and spacer.
- (13) Inlet air distortion at the engine inlet.
- (14) Transient rotor shaft overspeed r.p.m., and number of overspeed occurrences.
- (15) Transient gas overtemperature, and number of overtemperature occurrences.
- (16) For engines to be used in supersonic aircraft, engine rotor windmilling rotational r.p.m.

[Amdt. 33-6, 39 FR 35463, Oct. 1, 1974, as amended by Amdt. 33-10, 49 FR 6850, Feb. 23, 1984; Amdt. 33-11, 51 FR 10346, Mar. 25, 1986; Amdt. 33-12, 53 FR 34220, Sept. 2, 1988; Amdt. 33-18, 61 FR 31328, June 19, 1996]

§ 33.8 Selection of engine power and thrust ratings.

- (a) Requested engine power and thrust ratings must be selected by the applicant.
- (b) Each selected rating must be for the lowest power or thrust that all engines of the same type may be expected to produce under the conditions used to determine that rating.

[Amdt. 33-3, 32 FR 3736, Mar. 4, 1967]

Subpart B—Design and Construction; General

§ 33.11 Applicability.

This subpart prescribes the general design and construction requirements for reciprocating and turbine aircraft engines.

§ 33.13 [Reserved]

§ 33.15 Materials.

The suitability and durability of materials used in the engine must—

- (a) Be established on the basis of experience or tests; and
- (b) Conform to approved specifications (such as industry or military specifications) that ensure their having the strength and other properties assumed in the design data.

Secs. 313(a), 601, and 603, 72 Stat. 759, 775, 49 U.S.C. 1354(a), 1421, and 1423; sec. 6(c), 49 U.S.C. 1655(c)

[Amdt. 33-8, 42 FR 15047, Mar. 17, 1977, as amended by Amdt. 33-10, 49 FR 6850, Feb. 23, 1984]

§ 33.17 Fire prevention.

- (a) The design and construction of the engine and the materials used must minimize the probability of the occurrence and spread of fire. In addition, the design and construction of turbine engines must minimize the probability of the occurrence of an internal fire that could result in structural failure, overheating, or other hazardous conditions.

(b) Except as provided in paragraphs (c), (d), and (e) of this section, each external line, fitting, and other component, which contains or conveys flammable fluid must be fire resistant. Components must be shielded or located to safeguard against the ignition of leaking flammable fluid.

(c) Flammable fluid tanks and supports which are part of and attached to the engine must be fireproof or be enclosed by a fireproof shield unless damage by fire to any non-fireproof part will not cause leakage or spillage of flammable fluid. For a reciprocating engine having an integral oil sump of less than 25-quart capacity, the oil sump need not be fireproof nor be enclosed by fireproof shield.

(d) For turbine engines type certificated for use in supersonic aircraft, each external component which conveys or contains flammable fluid must be fireproof.