

under § 25.335(b) or found necessary during the flight tests conducted under § 25.253.

[Amdt. 25-23, 35 FR 5680, Apr. 8, 1970]

**§ 25.1507 Maneuvering speed.**

The maneuvering speed must be established so that it does not exceed the design maneuvering speed  $V_A$  determined under § 25.335(c).

**§ 25.1511 Flap extended speed.**

The established flap extended speed  $V_{FE}$  must be established so that it does not exceed the design flap speed  $V_F$  chosen under §§ 25.335(e) and 25.345, for the corresponding flap positions and engine powers.

**§ 25.1513 Minimum control speed.**

The minimum control speed  $V_{MC}$  determined under § 25.149 must be established as an operating limitation.

**§ 25.1515 Landing gear speeds.**

(a) The established landing gear operating speed or speeds,  $V_{LO}$ , may not exceed the speed at which it is safe both to extend and to retract the landing gear, as determined under § 25.729 or by flight characteristics. If the extension speed is not the same as the retraction speed, the two speeds must be designated as  $V_{LO(EXT)}$  and  $V_{LO(RET)}$ , respectively.

(b) The established landing gear extended speed  $V_{LE}$  may not exceed the speed at which it is safe to fly with the landing gear secured in the fully extended position, and that determined under § 25.729.

[Doc. No. 5066, 29 FR 18291, Dec. 24, 1964, as amended by Amdt. 25-38, 41 FR 55468, Dec. 20, 1976]

**§ 25.1516 Other speed limitations.**

Any other limitation associated with speed must be established.

[Doc. No. 2000-8511, 66 FR 34024, June 26, 2001]

**§ 25.1517 Rough air speed,  $V_{RA}$ .**

A rough air speed,  $V_{RA}$ , for use as the recommended turbulence penetration airspeed in § 25.1585(a)(8), must be established, which—

(1) Is not greater than the design airspeed for maximum gust intensity, selected for  $V_B$ ; and

(2) Is not less than the minimum value of  $V_B$  specified in § 25.335(d); and

(3) Is sufficiently less than  $V_{MO}$  to ensure that likely speed variation during rough air encounters will not cause the overspeed warning to operate too frequently. In the absence of a rational investigation substantiating the use of other values,  $V_{RA}$  must be less than  $V_{MO}-35$  knots (TAS).

[Doc. No. 27902, 61 FR 5222, Feb. 9, 1996]

**§ 25.1519 Weight, center of gravity, and weight distribution.**

The airplane weight, center of gravity, and weight distribution limitations determined under §§ 25.23 through 25.27 must be established as operating limitations.

**§ 25.1521 Powerplant limitations.**

(a) *General.* The powerplant limitations prescribed in this section must be established so that they do not exceed the corresponding limits for which the engines or propellers are type certificated and do not exceed the values on which compliance with any other requirement of this part is based.

(b) *Reciprocating engine installations.* Operating limitations relating to the following must be established for reciprocating engine installations:

(1) Horsepower or torque, r.p.m., manifold pressure, and time at critical pressure altitude and sea level pressure altitude for—

(i) Maximum continuous power (relating to unsupercharged operation or to operation in each supercharger mode as applicable); and

(ii) Takeoff power (relating to unsupercharged operation or to operation in each supercharger mode as applicable).

(2) Fuel grade or specification.

(3) Cylinder head and oil temperatures.

(4) Any other parameter for which a limitation has been established as part of the engine type certificate except that a limitation need not be established for a parameter that cannot be exceeded during normal operation due to the design of the installation or to another established limitation.