

procedures established by the applicant and provided in the airplane flight manual.

[Doc. No. 5066, 29 FR 18291, Dec. 24, 1964, as amended by Amdt. 25-23, 35 FR 5671, Apr. 8, 1970; Amdt. 25-42, 43 FR 2320, Jan. 16, 1978; Amdt. 25-72, 55 FR 29774, July 20, 1990; Amdt. 25-121, 72 FR 44665, Aug. 8, 2007 Amdt. 25-135, 76 FR 74654, Dec. 1, 2011; Amdt. 25-140, 79 FR 65524, Nov. 4, 2014]

§ 25.23 Load distribution limits.

(a) Ranges of weights and centers of gravity within which the airplane may be safely operated must be established. If a weight and center of gravity combination is allowable only within certain load distribution limits (such as spanwise) that could be inadvertently exceeded, these limits and the corresponding weight and center of gravity combinations must be established.

(b) The load distribution limits may not exceed—

- (1) The selected limits;
- (2) The limits at which the structure is proven; or
- (3) The limits at which compliance with each applicable flight requirement of this subpart is shown.

§ 25.25 Weight limits.

(a) *Maximum weights.* Maximum weights corresponding to the airplane operating conditions (such as ramp, ground or water taxi, takeoff, en route, and landing), environmental conditions (such as altitude and temperature), and loading conditions (such as zero fuel weight, center of gravity position and weight distribution) must be established so that they are not more than—

- (1) The highest weight selected by the applicant for the particular conditions; or
- (2) The highest weight at which compliance with each applicable structural loading and flight requirement is shown, except that for airplanes equipped with standby power rocket engines the maximum weight must not be more than the highest weight established in accordance with appendix E of this part; or
- (3) The highest weight at which compliance is shown with the certification requirements of Part 36 of this chapter.

(b) *Minimum weight.* The minimum weight (the lowest weight at which

compliance with each applicable requirement of this part is shown) must be established so that it is not less than—

- (1) The lowest weight selected by the applicant;
- (2) The design minimum weight (the lowest weight at which compliance with each structural loading condition of this part is shown); or
- (3) The lowest weight at which compliance with each applicable flight requirement is shown.

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§ 25.27 Center of gravity limits.

The extreme forward and the extreme aft center of gravity limitations must be established for each practicably separable operating condition. No such limit may lie beyond—

- (a) The extremes selected by the applicant;
- (b) The extremes within which the structure is proven; or
- (c) The extremes within which compliance with each applicable flight requirement is shown.

§ 25.29 Empty weight and corresponding center of gravity.

(a) The empty weight and corresponding center of gravity must be determined by weighing the airplane with—

- (1) Fixed ballast;
- (2) Unusable fuel determined under § 25.959; and
- (3) Full operating fluids, including—
 - (i) Oil;
 - (ii) Hydraulic fluid; and
 - (iii) Other fluids required for normal operation of airplane systems, except potable water, lavatory precharge water, and fluids intended for injection in the engine.

(b) The condition of the airplane at the time of determining empty weight must be one that is well defined and can be easily repeated.

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