§ 23.1583 Operating limitations.

The Airplane Flight Manual must contain operating limitations determined under this part 23, including the following—

(a) Airspeed limitations. The following information must be furnished:

(1) Information necessary for the marking of the airspeed limits on the indicator as required in §23.1545, and the significance of each of those limits and of the color coding used on the indicator.

(2) The speeds $V_{MC}$, $V_{O}$, $V_{LE}$, and $V_{LO}$, if established, and their significance.

(3) In addition, for turbine powered commuter category airplanes—

(i) The maximum operating limit speed, $V_{MO}$ or $M_{O}$, and a statement that this speed must not be deliberately exceeded in any regime of flight (climb, cruise or descent) unless a higher speed is authorized for flight test or pilot training;

(ii) If an airspeed limitation is based upon compressibility effects, a statement to this effect and information as to any symptoms, the probable behavior of the airplane, and the recommended recovery procedures; and

(iii) The airspeed limits must be shown in terms of $V_{MO}$ or $M_{O}$ instead of $V_{NO}$ and $V_{NE}$.

(b) Powerplant limitations. The following information must be furnished:
(1) Limitations required by §23.1521.
(2) Explanation of the limitations, when appropriate.
(3) Information necessary for marking the instruments required by §23.1549 through §23.1553.

(c) Weight. The airplane flight manual must include—

(1) The maximum weight; and
(2) The maximum landing weight, if the design landing weight selected by the applicant is less than the maximum weight.

(3) For reciprocating engine-powered airplanes of more than 6,000 pounds maximum weight, single-engine turbines, and multiengine jets 6,000 pounds or less maximum weight in the normal, utility, and acrobatic category, performance operating limitations as follows—

(i) The maximum takeoff weight for each airport altitude and ambient temperature within the range selected by the applicant at which the airplane complies with the climb requirements of §23.63(c)(1).

(ii) The maximum landing weight for each airport altitude and ambient temperature within the range selected by the applicant at which the airplane complies with the climb requirements of §23.63(c)(2).

(4) For normal, utility, and acrobatic category multiengine jets over 6,000 pounds and commuter category airplanes, the maximum takeoff weight for each airport altitude and ambient temperature within the range selected by the applicant at which—

(i) The airplane complies with the climb requirements of §23.63(d)(1); and

(ii) The accelerate-stop distance determined under §23.55 is equal to the available runway length plus the length of any stopway, if utilized; and either:

(A) The takeoff distance determined under §23.59(a) is equal to the available runway length; or
(B) At the option of the applicant, the takeoff distance determined under §23.59(a) is equal to the available runway length plus the length of any clearway and the takeoff run determined under §23.59(b) is equal to the available runway length.

(5) For normal, utility, and acrobatic category multiengine jets over 6,000 pounds and commuter category airplanes, the maximum landing weight for each airport altitude within the range selected by the applicant at which—

(i) The airplane complies with the climb requirements of §23.63(d)(2) for ambient temperatures within the range selected by the applicant; and
(ii) The landing distance determined under §23.75 for standard temperatures is equal to the available runway length.

(6) The maximum zero wing fuel weight, where relevant, as established in accordance with §23.343.

(d) Center of gravity. The established center of gravity limits.

(e) Maneuvers. The following authorized maneuvers, appropriate airspeed limitations, and unauthorized maneuvers, as prescribed in this section.

(1) Normal category airplanes. No acrobatic maneuvers, including spins, are authorized.

(2) Utility category airplanes. A list of authorized maneuvers demonstrated in the type flight tests, together with recommended entry speeds and any other associated limitations. No other maneuver is authorized.

(3) Acrobatic category airplanes. A list of approved flight maneuvers demonstrated in the type flight tests, together with recommended entry speeds and any other associated limitations.

(4) Acrobatic category airplanes and utility category airplanes approved for spinning. Spin recovery procedure established to show compliance with §23.221(c).

(5) Commuter category airplanes. Maneuvers are limited to any maneuver incident to normal flying, stalls, (except whip stalls) and steep turns in which the angle of bank is not more than 60 degrees.

(f) Maneuver load factor. The positive limit load factors in g’s, and, in addition, the negative limit load factor for acrobatic category airplanes.

(g) Minimum flight crew. The number and functions of the minimum flight crew determined under §23.1523.

(h) Kinds of operation. A list of the kinds of operation to which the airplane is limited or from which it is prohibited under §23.1525, and also a list of installed equipment that affects any
§ 23.1585 Operating procedures.

(a) For all airplanes, information concerning normal, abnormal (if applicable), and emergency procedures and other pertinent information necessary for safe operation and the achievement of the scheduled performance must be furnished, including—

(1) An explanation of significant or unusual flight or ground handling characteristics;

(2) The maximum demonstrated values of crosswind for takeoff and landing, and procedures and information pertinent to operations in crosswinds;

(3) A recommended speed for flight in rough air. This speed must be chosen to protect against the occurrence, as a result of gusts, of structural damage to the airplane and loss of control (for example, stalling);

(4) Procedures for restarting any turbine engine in flight, including the effects of altitude; and

(5) Procedures, speeds, and configuration(s) for making a normal approach and landing, in accordance with §§ 23.73 and 23.75, and a transition to the balked landing condition.

(b) In addition to paragraph (a) of this section, for all single-engine airplanes, the procedures, speeds, and configuration(s) for a glide following engine failure, in accordance with § 23.71 and the subsequent forced landing, must be furnished.

(c) In addition to paragraph (a) of this section, for all multiengine airplanes, the following information must be furnished:

(1) Procedures, speeds, and configuration(s) for making an approach and landing with one engine inoperative;

(2) Procedures, speeds, and configuration(s) for making a balked landing with one engine inoperative and the conditions under which a balked landing can be performed safely, or a warning against attempting a balked landing;

(3) The $V_{SSE}$ determined in § 23.149; and

(4) Procedures for restarting any engine in flight including the effects of altitude.

(d) In addition to paragraphs (a) and either (b) or (c) of this section, as appropriate, for all normal, utility, and acrobatic category airplanes, the following information must be furnished:

(1) Procedures, speeds, and configuration(s) for making a normal takeoff, in accordance with § 23.51 and (b), and § 23.53 (a) and (b), and the subsequent climb, in accordance with § 23.63 and § 23.69(a).

(2) Procedures for abandoning a takeoff due to engine failure or other cause.

(e) In addition to paragraphs (a), (c), and (d) of this section, for all normal, utility, and acrobatic category multi-engine airplanes, the information must include the following: