

to be materially altered in design if the alteration includes—

(1) The installation of powerplants other than those of a type similar to those with which it is certificated; or

(2) Alterations to the aircraft or its components that materially affect flight characteristics.

(e) No certificate holder may carry passengers in an aircraft during proving tests, except for those needed to make the test and those designated by the Administrator. However, it may carry mail, express, or other cargo, when approved.

[Doc. No. 6258, 29 FR 19197, Dec. 31, 1964, as amended by Amdt. 121-42, 33 FR 10330, July 19, 1968; 34 FR 13468, Aug. 21, 1969; Amdt. 121-162, 45 FR 46739, July 10, 1980; Amdt. 121-251, 60 FR 65927, Dec. 20, 1995]

Subpart I—Airplane Performance Operating Limitations

SOURCE: Docket No. 6258, 29 FR 19198, Dec. 31, 1964; 30 FR 130, Jan. 7, 1965, unless otherwise noted.

EDITORIAL NOTE: Nomenclature changes to subpart I appear at 60 FR 65928, Dec. 20, 1995.

§ 121.171 Applicability.

(a) This subpart prescribes airplane performance operating limitations for all certificate holders.

(b) For purposes of this part, *effective length of the runway* for landing means the distance from the point at which the obstruction clearance plane associated with the approach end of the runway intersects the centerline of the runway to the far end thereof.

(c) For the purposes of this subpart, *obstruction clearance plane* means a plane sloping upward from the runway at a slope of 1:20 to the horizontal, and tangent to or clearing all obstructions within a specified area surrounding the runway as shown in a profile view of that area. In the plan view, the centerline of the specified area coincides with the centerline of the runway, beginning at the point where the obstruction clearance plane intersects the centerline of the runway and proceeding to a point at least 1,500 feet from the beginning point. Thereafter the centerline coincides with the takeoff path over the ground for the runway (in the case of takeoffs) or with the instrument ap-

proach counterpart (for landings), or, where the applicable one of these paths has not been established, it proceeds consistent with turns of at least 4,000 foot radius until a point is reached beyond which the obstruction clearance plane clears all obstructions. This area extends laterally 200 feet on each side of the centerline at the point where the obstruction clearance plane intersects the runway and continues at this width to the end of the runway; then it increases uniformly to 500 feet on each side of the centerline at a point 1,500 feet from the intersection of the obstruction clearance plane with the runway; thereafter it extends laterally 500 feet on each side of the centerline.

[Doc. No. 6258, 29 FR 19198, Dec. 31, 1964, as amended by Amdt. 121-132, 41 FR 55475, Dec. 20, 1976]

§ 121.173 General.

(a) Except as provided in paragraph (c) of this section, each certificate holder operating a reciprocating-engine-powered airplane shall comply with §§ 121.175 through 121.187.

(b) Except as provided in paragraph (c) of this section, each certificate holder operating a turbine-engine-powered airplane shall comply with the applicable provisions of §§ 121.189 through 121.197, except that when it operates—

(1) A turbo-propeller-powered airplane type certificated after August 29, 1959, but previously type certificated with the same number of reciprocating engines, the certificate holder may comply with §§ 121.175 through 121.187; or

(2) Until December 20, 2010, a turbo-propeller-powered airplane described in § 121.157(f), the certificate holder may comply with the applicable performance requirements of appendix K of this part.

(c) Each certificate holder operating a large nontransport category airplane type certificated before January 1, 1965, shall comply with §§ 121.199 through 121.205 and any determination of compliance must be based only on approved performance data.

(d) The performance data in the Airplane Flight Manual applies in determining compliance with §§ 121.175 through 121.197. Where conditions are

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different from those on which the performance data is based, compliance is determined by interpolation or by computing the effects of changes in the specific variables if the results of the interpolation or computations are substantially as accurate as the results of direct tests.

(e) Except as provided in paragraph (c) of this section, no person may take off a reciprocating-engine-powered airplane at a weight that is more than the allowable weight for the runway being used (determined under the runway takeoff limitations of the operating rules of 14 CFR part 121, subpart I) after taking into account the temperature operating correction factors in the applicable Airplane Flight Manual.

(f) The Administrator may authorize in the operations specifications deviations from the requirements in the subpart if special circumstances make a literal observance of a requirement unnecessary for safety.

(g) The ten-mile width specified in §§ 121.179 through 121.183 may be reduced to five miles, for not more than 20 miles, when operating VFR or where navigation facilities furnish reliable and accurate identification of high ground and obstructions located outside of five miles, but within ten miles, on each side of the intended track.

[Doc. No. 6258, 29 FR 19198, Dec. 31, 1964, as amended by Amdt. 121-251, 60 FR 65928, Dec. 20, 1995]

§ 121.175 Airplanes: Reciprocating engine-powered: Weight limitations.

(a) No person may take off a reciprocating engine powered airplane from an airport located at an elevation outside of the range for which maximum takeoff weights have been determined for that airplane.

(b) No person may take off a reciprocating engine powered airplane for an airport of intended destination that is located at an elevation outside of the range for which maximum landing weights have been determined for that airplane.

(c) No person may specify, or have specified, an alternate airport that is located at an elevation outside of the range for which maximum landing weights have been determined for the

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reciprocating engine powered airplane concerned.

(d) No person may take off a reciprocating engine powered airplane at a weight more than the maximum authorized takeoff weight for the elevation of the airport.

(e) No person may take off a reciprocating engine powered airplane if its weight on arrival at the airport of destination will be more than the maximum authorized landing weight for the elevation of that airport, allowing for normal consumption of fuel and oil en route.

(f) This section does not apply to large nontransport category airplanes operated under § 121.173(c).

[Doc. No. 6258, 29 FR 19198, Dec. 31, 1964, as amended by Amdt. 121-251, 60 FR 65928, Dec. 20, 1995]

§ 121.177 Airplanes: Reciprocating engine-powered: Takeoff limitations.

(a) No person operating a reciprocating engine powered airplane may takeoff that airplane unless it is possible—

(1) To stop the airplane safely on the runway, as shown by the accelerate stop distance data, at any time during takeoff until reaching critical-engine failure speed;

(2) If the critical engine fails at any time after the airplane reaches critical-engine failure speed V_1 , to continue the takeoff and reach a height of 50 feet, as indicated by the takeoff path data, before passing over the end of the runway; and

(3) To clear all obstacles either by at least 50 feet vertically (as shown by the takeoff path data) or 200 feet horizontally within the airport boundaries and 300 feet horizontally beyond the boundaries, without banking before reaching a height of 50 feet (as shown by the takeoff path data) and thereafter without banking more than 15 degrees.

(b) In applying this section, corrections must be made for the effective runway gradient. To allow for wind effect, takeoff data based on still air may be corrected by taking into account not more than 50 percent of any reported headwind component and not less than 150 percent of any reported tailwind component.