

and oil, that does not allow a rate of climb (in feet per minute), with all engines operating, of at least  $6.90 V_{so}$  (that is, the number of feet per minute is obtained by multiplying the number of knots by 6.90) at an altitude of at least 1,000 feet above the highest ground or obstruction within ten miles of each side of the intended track.

(b) This section does not apply to airplanes certificated under part 4a of the Civil Air Regulations.

(c) 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]

**§ 121.181 Airplanes: Reciprocating engine-powered: En route limitations: One engine inoperative.**

(a) Except as provided in paragraph (b) of this section, no person operating a reciprocating engine powered airplane may take off that airplane at a weight, allowing for normal consumption of fuel and oil, that does not allow a rate of climb (in feet per minute), with one engine inoperative, of at least  $(0.079-0.106/N) V_{so}^2$

(where  $N$  is the number of engines installed and  $V_{so}$  is expressed in knots) at an altitude of at least 1,000 feet above the highest ground or obstruction within 10 miles of each side of the intended track. However, for the purposes of this paragraph the rate of climb for airplanes certificated under part 4a of the Civil Air Regulations is  $0.026 V_{so}^2$ .

(b) In place of the requirements of paragraph (a) of this section, a person may, under an approved procedure, operate a reciprocating engine powered airplane, at an all-engines-operating altitude that allows the airplane to continue, after an engine failure, to an alternate airport where a landing can be made in accordance with § 121.187, allowing for normal consumption of fuel and oil. After the assumed failure, the flight path must clear the ground and any obstruction within five miles on each side of the intended track by at least 2,000 feet.

(c) If an approved procedure under paragraph (b) of this section is used,

the certificate holder shall comply with the following:

(1) The rate of climb (as prescribed in the Airplane Flight Manual for the appropriate weight and altitude) used in calculating the airplane's flight path shall be diminished by an amount, in feet per minute, equal to

$(0.079-0.106/N) V_{so}^2$

(when  $N$  is the number of engines installed and  $V_{so}$  is expressed in knots) for airplanes certificated under part 25 of this chapter and by  $0.026 V_{so}^2$  for airplanes certificated under part 4a of the Civil Air Regulations.

(2) The all-engines-operating altitude shall be sufficient so that in the event the critical engine becomes inoperative at any point along the route, the flight will be able to proceed to a predetermined alternate airport by use of this procedure. In determining the takeoff weight, the airplane is assumed to pass over the critical obstruction following engine failure at a point no closer to the critical obstruction than the nearest approved radio navigational fix, unless the Administrator approves a procedure established on a different basis upon finding that adequate operational safeguards exist.

(3) The airplane must meet the provisions of paragraph (a) of this section at 1,000 feet above the airport used as an alternate in this procedure.

(4) The procedure must include an approved method of accounting for winds and temperatures that would otherwise adversely affect the flight path.

(5) In complying with this procedure fuel jettisoning is allowed if the certificate holder shows that it has an adequate training program, that proper instructions are given to the flight crew, and all other precautions are taken to insure a safe procedure.

(6) The certificate holder shall specify in the dispatch or flight release an alternate airport that meets the requirements of § 121.625.

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

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