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CIVIL AERONAUTICS MANUALS—Volume VII

Federal Aviation Agency

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Supplement No. 9 **March 15, 1959**

SUBJECT: Revisions to Civil Aeronautics Manual 42 dated August 1956.

The purpose of this supplement is to include Special Civil Air Regulation No. SR–426, effective October 27, 1958.

SR–426 establishes the criteria for granting performance credit for transport category airplanes equipped with standby power.

The black brackets ordinarily used to indicate new material have been omitted in this supplement because of the length of the new material.

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William B. Davis

WILLIAM B. DAVIS, *Director,*
Bureau of Flight Standards.

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insure safe operation until such change is made. (See also section 1.24 of Part 1 of the Civil Air Regulations.)

(9) The provisional airworthiness certificate shall be prominently displayed in the airplane at all times.

(10) Operations under this special regulation shall be restricted to the United States, its territories, and possessions, unless otherwise authorized by the Board.

(b) *Additional air carrier rules.*

(1) Each air carrier shall maintain current records for each flight crew member. These records shall contain such information as is necessary to show that the crew member is properly trained and qualified to perform his assigned duties.

(2) The appropriate instructor, supervisor, or check airman shall certify as to the proficiency of each flight crew member and such certification shall become a part of the flight crew member's record.

(3) A log of flights conducted under this special regulation, and accurate and complete records of the inspections made, shall be kept by each air carrier and made available to the manufacturer and the Administrator.

This special regulation supersedes Special Civil Air Regulation No. SR-425 and shall terminate on June 20, 1961, unless sooner superseded or rescinded by the Board.

SPECIAL CIVIL AIR REGULATION NO. SR-426

Effective: October 27, 1958
Adopted: September 22, 1958

Performance Credit for Transport Category Airplanes Equipped With Standby Power

Contrary performance provisions of the Civil Air Regulations notwithstanding, the Administrator may grant performance credit for the use of standby power on transport category airplanes. Such credit shall be applicable only to the maximum certificated take-off and landing weights, the take-off distance, and the take-off paths, and shall not exceed that found by the Administrator to result in an over-all level of safety in the take-off, approach, and landing regimes of flight equivalent to that prescribed in the regulations under which the airplane was originally certificated without standby power. (Note: Standby power is power and/or thrust obtained from rocket engines for a relatively short period and actuated only in cases of emergency.) The following provisions shall apply:

(1) *Take-off; general.* The take-off data prescribed in sections (2) and (3) shall be determined at all weights and altitudes, and at ambient temperatures if applicable, at which performance credit is to be applied.

(2) *Take-off path.*

(a) The one-engine-inoperative take-off path with standby power in use shall be determined in accordance with the performance requirements of the applicable airworthiness regulations.

(b) The one-engine-inoperative take-off path (excluding that portion where the airplane is on or just above the take-off surface) determined in accordance with paragraph (a) of this section shall lie above the one-engine-inoperative take-off path without standby power at the maximum take-off weight at which all of the applicable airworthiness requirements are met. For the purpose of this comparison, the flight path shall be considered to extend to at least a height of 400 feet above the take-off surface.

(c) The take-off path with all engines operating, but without the use of standby power, shall reflect a conservatively greater over-all level of performance than the one-engine-inoperative take-off path established in accordance with paragraph (a) of this section. The aforementioned margin shall be established by the Administrator to insure safe day-to-day operations, but in no case shall it be less than 15 percent. The all-engines-operating take-off path shall be determined by a procedure consistent with that established in complying with paragraph (a) of this section.

(d) For reciprocating-engine-powered airplanes, the take-off path to be scheduled in the Airplane Flight Manual shall represent the one-engine-inoperative take-off path determined in accordance with paragraph (a) of this section and modified to reflect the procedure (see sec. (6)) established by the applicant for flap retraction and attainment of the en route speed. The scheduled take-off path shall have a positive slope at all points of the airborne portion and at no point shall it lie above the take-off path specified in paragraph (a) of this section.

(3) *Take-off distance.* The take-off distance shall be the horizontal distance along the one-engine-inoperative take-off path determined in accordance with section (2)(a) from the start of the take-off to the point where the airplane attains a height of 50 feet above the take-off surface for reciprocating-engine-powered airplanes and a height of 35 feet above the take-off surface for turbine-powered airplanes.

(4) *Maximum certificated take-off weights.* The maximum certificated take-off weights shall be determined at all altitudes, and at ambient temperatures if applicable, at which performance credit is to be applied and shall not exceed the weights established in compliance with paragraphs (a) and (b) of this section.

(a) The conditions of section (2)(b) through (d) shall be met at the maximum certificated take-off weight.

(b) Without the use of standby power, the airplane shall meet all of the en route requirements of the applicable airworthiness regulations under which the airplane was originally certificated. In addition, turbine-powered airplanes without the use of standby power shall meet the final take-off climb requirements prescribed in the applicable airworthiness regulations.

(5) *Maximum certificated landing weights.*

(a) The maximum certificated landing weights (one-engine-inoperative approach and all-engines-operating landing climb) shall be determined at all altitudes, and at ambient temperatures if applicable, at which

performance credit is to be applied and shall not exceed that established in compliance with the provisions of paragraph (b) of this section.

(b) The flight path, with the engines operating at the power and/or thrust appropriate to the airplane configuration and with standby power in use, shall lie above the flight path without standby power in use at the maximum weight at which all of the applicable airworthiness requirements are met. In addition, the flight paths shall comply with the provisions of subparagraphs (i) and (ii) of this paragraph.

(i) The flight paths shall be established without changing the appropriate airplane configuration.

(ii) The flight paths shall be carried out for a minimum height of 400 feet above the point where standby power is actuated.

(6) *Airplane configuration, speed, and power and/or thrust; general.* Any change in the airplane's configuration, speed, and power and/or thrust shall be made in accordance with the procedures established by the applicant for the operation of the airplane in service and shall comply with the provisions of paragraphs (a) through (c) of this section. In addition, procedures shall be established for the execution of balked landings and missed approaches.

(a) The Administrator shall find that the procedure can be consistently executed in service by crews of average skill.

(b) The procedure shall not involve methods or the use of devices which have not been proven to be safe and reliable.

(c) Allowances shall be made for such time delays in the execution of the procedures as may be reasonably expected to occur during service.

(7) *Installation and operation; standby power.* The standby power unit and its installation shall comply with the provisions of paragraphs (a) and (b) of this section.

(a) The standby power unit and its installation shall not adversely affect the safety of the airplane.

(b) The operation of the standby power unit and its control shall have proven to be safe and reliable.