Affects Parts: 4b, 10, 40
41, 42, 43

Amendment No. 1,
Regulation No. SR-422B

UNITED STATES OF AMERICA
FEDERAL AVIATION AGENCY
WASHINGTON, D.C.

Effective: January 15, 1963
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Title 14—AERONAUTICS AND SPACE

Chapter I—Federal Aviation Agency

[Reg. Docket No. 1220; Amdt. 1, Reg. No. SR-422B]

PART 4B—AIRPLANE AIRWORTHINESS; TRANSPORT CATEGORIES

PART 10—CERTIFICATION AND APPROVAL OF IMPORT AIRCRAFT AND RELATED PRODUCTS

PART 40—SCHEDULED INTERSTATE AIR CARRIER CERTIFICATION AND OPERATION RULES

PART 41—CERTIFICATION AND OPERATION RULES FOR SCHEDULED AIR CARRIER OPERATIONS OUTSIDE THE CONTINENTAL LIMITS OF THE UNITED STATES

PART 42—IRREGULAR AIR CARRIER AND OFF-ROUTE RULES

PART 43—GENERAL OPERATION RULES

Special Civil Air Regulation; Turbine-Powered Transport Category Airplanes of Current Design; Three-Engine Airplanes; Amendments

The purpose of this amendment is to make the performance requirements of Special Civil Air Regulation No. SR-422B complete and fully applicable with respect to three-engine turbine-powered airplanes. The areas of performance affected by this amendment involve the takeoff safety speed, climb gradients, and en route flight path data.

The Federal Aviation Agency published as a notice of proposed rule making (27 F.R. 4938) and circulated as Civil Air Regulations Draft Release No. 62-24 dated May 18, 1962, a proposal to amend SR-422B to establish specific performance requirements for three-engine turbine-powered airplanes.

The airframe manufacturers have shown an interest in three-engine turbine-powered airplanes. The Agency has received two applications for type certification of such airplanes. However, SR-422B is not specifically applicable to three-engine airplanes. Therefore, in order to insure an adequate level of safety for three-engine airplanes, it is necessary to establish complete performance requirements for such airplanes prior to their type certification.

There are eight provisions in SR-422B which contain specific climb gradients for only two-engine and four-engine airplanes. These are contained in §§ 4T.116g, 4T.117a(b), 4T.120 (a) through (d), and 4T.121 (a) and (b). Amendments to these provisions are included herein to set forth appropriate climb gradient values for three-engine airplanes.

In the currently effective provisions of § 4T.114(b), there is a differentiation in the specified minimum takeoff safety speeds applicable to two-engine and four-engine propeller-driven airplanes. Considering the likely configurations of three-engine propeller-equipped airplanes and the effects of engine failure, it appears that these airplanes would fit into the category of the two-engine propeller-driven airplane. Therefore, prescription of the takeoff safety speeds for three-engine propeller-driven airplanes, in terms of the stall speed, is made the same as is currently prescribed for two-engine propeller-driven airplanes.

In § 4T.121(b), the margin of climb gradient for four-engine airplanes with two-engines inoperative is prescribed to be 0.5 percent. Pursuant to the en route limitations of § 40T.83, airplanes are precluded from flying along an intended route if any place along the route is more than 90 minutes from a suitable airport unless compliance is shown with the two-engine-inoperative en route limitations of 40T.83(b). These requirements automatically prohibit two-engine airplanes from flying such routes.

Two comments were received in response to Draft Release 62-24. One such comment was favorable; the other comment expressed a need for a revision of the proposed rule. In the latter case, the Aerospace Industries Association (AIA) questioned the validity of certain of the current provisions involving the two-engines-inoperative limitations and proposed certain revisions to the cur-

(As published in the Federal Register [27 F.R. 12399] December 14, 1962)

rent provisions of SR–422B. In this regard, the AIA proposal involved an increase in the time limitation of 90 minutes associated with § 40T.83 to 120 minutes, and assumptions that the first engine fails at the critical point of the route and the second engine fails thirty minutes later. The currently effective regulations require the assumption that the two engines fail simultaneously. Inasmuch as the AIA proposal would change the present requirements for two-engine and four-engine airplanes as well as three-engine airplanes, it goes considerably beyond the scope of the proposal set forth in Draft Release 62–24.

The Agency has considered the AIA proposals and finds that they would result in a lowering of the level of safety provided for by the current regulations the lowering of which could not be justified. The Agency is of the view that the en route level of safety with two-engines inoperative for three-engine airplanes over relatively long routes should be the same as currently prescribed in the regulations for four-engine airplanes. It is believed that the proposals contained in Draft Release 62–24 would achieve this goal, therefore, those proposals are incorporated in this amendment without any significant change.

Systemworthiness of three-engine turbine-powered airplanes also requires evaluation of other requirements of the Civil Air Regulations dealing with airman certification and with the operating rules not contained in SR–422B. The Agency intends to take the necessary regulatory action with respect to these matters prior to the introduction of three-engine turbine-powered airplanes into air carrier service.

Interested persons have been afforded an opportunity to participate in the making of this amendment (27 F.R. 4938), and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, Special Civil Air Regulation No. SR–422B is hereby amended as follows, effective January 15, 1963:

1. By amending § 4T.114(b)(1) by inserting between the words "two-engine" and "propeller-driven" the words "and three-engine".

2. By amending § 4T.114(b)(2) by deleting the words "two engines" and inserting in lieu thereof the words "three engines".

3. By amending § 4T.116(g) by inserting after the words "two-engine airplanes" the following phrase "1.5 percent for three-engine airplanes".

4. By amending § 4T.117a(b) by inserting between the words "two-engine airplanes" and the word "and" the phrase ", equal to 0.9 percent for three-engine airplanes".

5. By amending § 4T.120(a) by inserting between the words "shall not be less than" and the numerals "0.5" the phrase "0.3 percent for three-engine airplanes, and not less than".

6. By amending § 4T.120(b) by inserting between the words "two-engine airplanes" and the word "and" the phrase ", not less than 2.7 percent for three-engine airplanes,".

7. By amending § 4T.120(c) by inserting between the words "two-engine airplanes" and the word "and" the phrase ", not less than 1.5 percent for three-engine airplanes,".

8. By amending § 4T.120(d) by inserting between the words "two-engine airplanes" and the word "and" the phrase ", not less than 2.4 percent for three-engine airplanes,".

9. By amending § 4T.121(a) by inserting between the words "two-engine airplanes" and the word "and" the phrase ", 1.4 percent for three-engine airplanes,".

10. By amending § 4T.121(b) by deleting the first sentence and inserting in lieu thereof the following new sentence "for airplanes with three or four engines, the two-engine-inoperative net flight path data shall be determined in such a manner that they represent the airplane's actual climb performance diminished by a gradient of climb equal to 0.3 percent for three-engine airplanes and equal to 0.5 percent for four-engine airplanes."

(Secs. 313(a), 601, 603; 72 Stat. 752, 775, 776; 49 U.S.C. 1354, 1421, 1423)

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N. E. HALABY,
Administrator.

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