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

Regulation No. SR-423

UNITED STATES OF AMERICA
CIVIL AERONAUTICS BOARD
WASHINGTON, D. C.

Effective: December 20, 1957
Adopted: November 15, 1957

SPECIAL CIVIL AIR REGULATION

TYPE CERTIFICATION OF TRANSPORT CATEGORY AIRPLANES WITH TURBO-PROP REPLACEMENTS

The airworthiness requirements with which a particular airplane is required to comply are established by the date of application for the type certificate. After the type certificate is issued, the holder of the type certificate or an applicant for a supplemental type certificate, at his option, can obtain approval of changes in the design in accordance with requirements in effect at the time of the original application for type certificate or in accordance with later requirements in effect at the time of the change.

Prior to May 18, 1954, the regulations placed no specific limit on the extent of changes to the airplane which could be approved in this manner nor did they define a new type design for which a new application for type certification would be required. Amendment 4b-1 effective on that date, among other changes in Part 4b, lists certain changes in design which if made to an airplane would require it to be considered as a new type. In such a case, a new application for type certification would be required and the regulations, together with all amendments thereto effective on the date of the new application, would have to be complied with (§ 4b.11 (a)). One such change which would require a new type certificate is a change to engines employing different principles of operation or propulsion (§ 4b.11 (e) (2)).

Interest has been shown recently within the aviation industry in the installation of turbo-propeller engines on airplanes presently equipped with reciprocating engines. In accordance with § 4b.11 (e) (2) such a change would require a showing of compliance with the latest airworthiness requirements of Part 4b. The Board is of the opinion that showing of compliance with all of the latest requirements might be burdensome, impractical, and not essential to safety.

This Special Civil Air Regulation will permit the certification of a turbo-propeller-powered airplane, which previously was type certificated with the same number of reciprocating engines, if compliance is shown with the airworthiness provisions applicable to the airplane as type certificated with reciprocating engines, together with certain later provisions of the Civil Air Regulations in effect on the date of application for a supplemental or new type certificate which are applicable or related to the powerplant of the turbo-propeller-powered version.

In order to insure that the level of safety of the turbine-powered airplane is equivalent to that intended by Part 4b, the Board considers that compliance must be shown with the later provisions of Part 4b which apply to the powerplant installation, airplane performance, and cockpit standardization, and such other requirements as the Administrator finds are otherwise related to the changes made in the engines.

Special Civil Air Regulation No. SR-422 establishes certain certification and operational requirements for all turbine-powered airplanes for which a type certificate is issued after the effective date of that regulation. Except as otherwise provided, all of the provisions of SR-422 remain applicable to airplanes certificated in accordance with the regulation prescribed herein. Therefore, to be certificated in accordance with the regulation prescribed herein compliance must be shown with the certification performance requirements prescribed in paragraph 2 of SR-422.

It must be emphasized that the certification performance limitations established by the performance requirements; i.e., the take-off weights, landing weights, take-off and accelerate-stop distances, and the operational limits, become part of the airworthiness certificate and must be complied with at all times, regardless of the type of operations conducted with the airplane. (See § 43.10, as amended, of Part 43 of the Civil Air Regulations).

In addition to certification performance limitations, SR-422 prescribes performance operating limitations which are applicable to turbine-powered transport category airplanes when used in air carrier passenger operations. Since turbo-propeller-powered airplanes certificated in accordance with the regulation prescribed herein are required to comply with the certification performance requirements of SR-422, they are also subject to the performance operating limitations prescribed in paragraph 3 of SR-422 when used in air carrier passenger operations.

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Since a change in engines will require a rather extensive change in the cockpit to accommodate the new instruments and controls for turbine engines, the Board considers that compliance with the latest cockpit standardization requirements can be accomplished without any undue burden and such compliance would speed up the cockpit standardization of other airplanes in an airline's fleet in accordance with the Board's objectives. Therefore, this regulation makes the latest cockpit standardization requirements applicable, with the exception of such detailed requirements as the Administrator finds are impracticable, and do not contribute materially to standardization. It should be noted that in referring to this exception in the preamble to Draft Release No. 56-29, the use of the conjunction "or" after the word "impracticable" was inadvertent. As the language of the proposed regulation clearly indicated, "and" was the proper conjunction following the word "impracticable."

The Board also considers it appropriate to call attention to the fact that if other changes to the airplane are made simultaneously with, or subsequent to, such an engine change, then compliance will also have to be shown with all requirements related to the additional changes in effect on the date of the new application for a supplemental or new type certificate. In this regard, if an airplane converted to turbo-propeller power is to be certificated for operation at altitudes, speeds, or weights higher than those which are applicable to the reciprocating-engine-powered airplane, compliance will be required with all the latest provisions of the regulations which are related to such changes.

In order to assure that all airplanes converted to turbo-propeller power meet the minimum requirements considered essential to safety, this regulation is made retroactive and requires compliance with the provisions of the Civil Air Regulations as set forth herein for all of such airplanes for which application for a supplemental or new type certificate was made prior to the effective date of this regulation.

This Special Civil Air Regulation shall continue in effect for 5 years, at the end of which time the effectiveness of the regulation will be evaluated for the purpose of considering the incorporation of the substance of these rules in the permanent body of the Civil Air Regulations.

Interested persons have been afforded an opportunity to participate in the making of this Special Civil Air Regulation (21 F.R. 9436), and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, the Civil Aeronautics Board hereby makes and promulgates the following Special Civil Air Regulation effective December 20, 1957.

Contrary provisions of § 4b.11 (a) as it applies to § 4b.11 (e) (2) of Part 4b of the Civil Air Regulations and paragraph (1) of Special Civil Air Regulation No. SR-422 notwithstanding, the following provisions shall be applicable to the certification of a turbo-propeller-powered airplane which was previously type certificated with the same number of reciprocating engines:

(1) The airworthiness regulations applicable to the airplane as type certificated with reciprocating engines and, in addition thereto or in lieu thereof as appropriate, the following provisions of the Civil Air Regulations effective on the date of application for a supplemental or new type certificate (see paragraph (3)):

(a) The certification performance requirements prescribed in Special Civil Air Regulation No. SR-422;

(b) The powerplant installation requirements of Part 4b applicable to the turbo-propeller-powered airplane;

(c) The requirements of Part 4b for the standardization of cockpit controls and instruments, except where the Administrator finds that showing of compliance with a particular detailed requirement would be impracticable and would not contribute materially to standardization; and

(d) Such other requirements of Part 4b applicable to the turbo-propeller-powered airplane as the Administrator finds are related to the changes in engines and are necessary to insure a level of safety of the turbo-propeller-powered airplane equivalent to that generally intended by Part 4b.

(2) If new limitations are established with respect to weight, speed, or altitude of operation and the Administrator finds that such limitations are significantly altered from those approved for the airplane with reciprocating engines, compliance shall be shown with all of the requirements, applicable to the specific limitations being changed, which are in effect on the date of application for the new or supplemental type certificate.

(3) Airplanes converted to turbo-propeller power, for which application for a supplemental or a new type certificate was made prior to the effective date of this Special Civil Air Regulation, shall comply with all of the provisions of the Civil Air Regulations specified in paragraphs (1) and (?) effective on the date of this special regulation, rather than those provisions effective on the date application was made for the supplemental or the new type certificate.

This Special Civil Air Regulation shall terminate December 20, 1962 unless sooner superseded or rescinded by the Board.

(Sec. 205 (a), 52 Stat. 984; 49 U.S.C. 425 (a). Interpret or apply secs. 601, 603, 52 Stat. 1007, 1009, as amended, 49 U.S.C. 551, 553)

By the Civil Aeronautics Board:

/s/ M. C. Mulligan

M. C. Mulligan
Secretary

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