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

Civil Air Regulations Amendment 40-40
Effective: April 10, 1964
Issued: April 2, 1964

[Reg. Docket No. 1849; Amdt. 40-40]

PART 40—SCHEDULED INTERSTATE AIR CARRIER CERTIFICATION AND OPERATION RULES

Operation of Three-Engine Airplanes

The purpose of this amendment is to prescribe certain training and proficiency requirements for the pilot in command of a three-engine airplane and to authorize certain operations of three-engine airplanes under the same conditions authorized for four-engine airplanes.

On July 11, 1963, the Federal Aviation Agency issued as a notice of proposed rule making (28 F.R. 7398), circulated as Notice No. 63-26, a proposal to amend Parts 40, 41, and 42 to require that training and proficiency maneuvers for pilots in command of three-engine airplanes include the operation of the airplane with the most critical combination of two engines inoperative, or operating at zero thrust, and to authorize the same prerogatives in the operation of three-engine airplanes that are permitted in the operation of four-engine airplanes with respect to:

1. Continuation of flight under certain circumstances beyond the nearest suitable airport with one engine inoperative; and

2. Location of the alternate airport at a distance up to two hours of flying time, with one engine inoperative, from the airport of takeoff.

Insofar as this amendment relates to the initial flight training of a pilot qualifying to serve as pilot in command of a three-engine airplane, § 40.282(b)(1)(ii) is amended to require flight in a three-engine airplane, including maneuvering to a landing, with the most critical combination of two engines inoperative. These maneuvers will then be required as part of the pilot in command proficiency check as well, since § 40.302(b)(2)(i) requires that the maneuvers set forth in § 40.282(b)(1) be accomplished during that check. Also, with regard to the pilot in command proficiency check, CAM §§ 40.302-1(j) and 40.302-1(v) respectively require maneuvering and landing while utilizing 50 percent of the available power units. These sections are amended to make them applicable to three-engine airplanes by requiring the maneuvers to be performed in those airplanes with the center and one outboard engine in a simulated inoperative condition.

The Air Line Pilots Association's comments on these requirements were favorable provided that experience gained subsequent to the preparation of their comments proved that the maneuvers could be performed safely considering the actual performance characteristics of the airplanes which had not been certificated at that time. Experience gained subsequently with airplanes of this type has shown that airplane performance is adequate for these maneuvers.

The Aerospace Industries Association and the Air Transport Association opposed the two-engine-inoperative maneuver requirements. One basis of their opposition was the good engine reliability record of turbine-powered airplanes. They further contended that the requirement is more stringent than for four-engine airplanes; that maneuvering to a landing with two engines inoperative exposes the airplane to untoward incidents; and that proficiency in these maneuvers could be attained through the practice of other maneuvers such as engine failure on takeoff and jammed stabilizer landings.

The Federal Aviation Agency recognizes the commendable engine reliability record established to date by turbine-powered airplanes. However, while improved reliability reduces the probability of engine failures, the possibility factor has not been eliminated and cannot be ignored. The airplane is required to have certain performance capabilities with two engines inoperative so that the airplane may proceed to a landing in the event of two engine failures when operating more than 90 minutes from an airport. The Federal Aviation Agency believes that pilots must be competent to fly the airplane in any configuration in which it is certificated to fly.

The two-engine-inoperative landing maneuver is sufficiently different from other required maneuvers that proficiency in this maneuver is not attained by practice of the other maneuvers as was suggested by the air carriers. Con-

cerning the industry contention that two-engine inoperative landings unnecessarily expose the airplane to an incident, experience has shown that when the degree of skill and judgment normally required in training type operations is used there is no reason to consider the two-engine-inoperative maneuvers to be unduly hazardous.

Section 40.75 provides for the en route operation of four-engine piston-powered airplanes along a track which is as much as 90 minutes or more from an available landing area when appropriate performance and gross weight requirements are complied with. Notice 63-26 contained a proposal to amend that section by broadening its applicability to include three-engine piston-powered airplanes. As a necessary corollary to this, it was proposed to amend § 40.62(a) (which limits two- and three-engine airplanes to operation at distances of not more than 60 minutes from an airport) by deleting reference in it to all three-engine airplanes. After consideration of the fact that three-engine piston-powered airplanes are not now available nor envisioned in the foreseeable future, it has been decided that the proposed amendments to §§ 40.75 and 40.62(a), insofar as they apply to three-engine piston-powered airplanes, are unnecessary. Section 40.62(a) is amended by excepting from its provisions three-engine turbine-powered airplanes, but not three-engine piston-powered airplanes as was proposed. Excepting three-engine turbine-powered airplanes from the provisions of § 40.62(a) will enable them to be operated more than 60 minutes from an airport as provided in Section 40T.83 of SR-422B.

Interested persons have been afforded an opportunity to participate in the making of this amendment, and due consideration has been given to all relevant matter presented. The issuance of this amendment was withheld until sufficient flight experience had been obtained with a three-engine turbine-powered airplane. Inasmuch as this type of airplane has recently been certificated by the Agency and introduced into air carrier operations, I find that, in the interest of safety there is good cause for making it effective on less than 30 days' notice.

This amendment is made under the authority of sections 313(a), 601, and 604 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1421, 1424).

In consideration of the foregoing, Part 40 of Chapter I of Title 14 of the Code of Federal Regulations is amended, effective April 10, 1964, as hereinafter set forth.

§ 40.62 [Amended]

1. By amending § 40.62(a) by inserting at the beginning thereof the phrase "Except for three-engine turbine-powered airplanes * * *".

2. By amending § 40.282(b)(1)(ii) to read as follows:

§ 40.282 Initial pilot flight training.

* * * * *

(b) * * *

(1) * * *

(ii) At the authorized maximum landing weight, flight, including maneuvering to a landing, in a three- or four-engine airplane with the most critical combination of two engines inoperative, or operating at zero thrust, utilizing, where appropriate, applicable climb speeds as set forth in the Airplane Flight Manual.

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3. By amending § 40.302-1(j) by adding between the first and second sentences a new sentence to read: "In the case of a three-engine airplane, maneuvering will be accomplished with a loss of the center and one outboard engine."

4. By amending § 40.302-1(v) by adding before the last sentence a new sentence to read: "In the case of a three-engine airplane, the airplane shall be maneuvered to a landing while utilizing one of the outboard engines, and with the center engine and the other outboard engine in a simulated inoperative condition."

§ 40.363 [Amended]

5. By amending § 40.363(b) by deleting from the introductory sentence the numeral "4" and inserting in lieu thereof the numeral "3".

§ 40.388 [Amended]

6. By amending § 40.388(a) by deleting from the title of subparagraph (1) the words "or 3", and by deleting from the title of subparagraph (2) the numeral "4" and inserting in lieu thereof the numeral "3".

Issued in Washington, D.C., on April 2, 1964.

N. E. HALABY,
Administrator.

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