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

Regulations
Serial Number 130

At a session of the Civil Aeronautics Board held at its office in Washington, D. C. on the 13th day of December, 1940.

Acting pursuant to the authority vested in it by the Civil Aeronautics Act of 1938, as amended, particularly sections 205(a), 601(a), 603(a) and 604 of said Act, and finding that its action is desirable in the public interest and is necessary to carry out the provisions of, and to exercise and perform its powers and duties under, said Act, the Civil Aeronautics Board amends the Civil Air Regulations as follows:

TITLE: PROVIDING FOR THE TYPE CERTIFICATION OF AIRCRAFT RADIO EQUIPMENT

Amendment No. 85 to C. A. R., adding a new Part 16 and amending Sections 40.235, 40.253, 40.2530, 40.2531, 40.2532, 04.503, 04.530(e), 04.532(h) Insert following Part 15

Effective: February 13, 1941

Effective February 13, 1941, the Civil Air Regulations are amended as follows:

1. By adding a new Part to read as follows:

"PART 16 -- AIRCRAFT RADIO EQUIPMENT AIRWORTHINESS *

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GENERAL

16.10 Scope. Aircraft radio equipment required by the Civil Air Regulations to be type certificated and installed in certificated aircraft is eligible for a type certificate upon meeting the requirements hereinafter prescribed.

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* Application for type certification of aircraft radio equipment should be made as prescribed in Part 02. The provisions of sections 02.2 and 02.3 providing for a production certificate and the rules for the operation under such certificate shall not be applicable to the case of type certification of aircraft radio equipment.

16.11 Deviation. New types, or new types of construction, of aircraft radio equipment which make the tests prescribed by these regulations inapplicable may be subjected to such other tests as the Administrator may deem necessary to insure safe operation.

16.12 Waiver. The tests prescribed herein may be waived whenever, in the opinion of the Administrator, a particular part of aircraft radio equipment is so designed or constructed that such tests are not necessary to insure airworthiness.

TECHNICAL DATA

16.20 General. To be eligible for a type certificate for aircraft radio equipment, an applicant must submit the following technical data:

16.21 Drawings. One set of drawings in blue print or equivalent form folded to approximately 9 x 12 inches containing the manufacturer's designation of the aircraft radio equipment and all details of design, construction, assembly, and materials used which are necessary for the reproduction of such aircraft radio equipment: Provided, That adequate photographs may be substituted for such drawings if such photographs are suitably marked to indicate the details required herein.

16.22 Drawing list. A drawing list setting forth in numerical order or by other suitable classification, the title and number or date of each drawing submitted under section 16.21.

16.23 Parts list. A list specifying each component part of the aircraft radio equipment submitted to the Administrator for certification. The list shall indicate the physical or circuit location of each item and the type or model designation assigned to such item by the manufacturer.

CHARACTERISTICS

16.30 Design and tests. To be eligible for type certification, aircraft radio equipment must be so designed and constructed that it will satisfactorily perform the function or functions for which it is intended to be used in aircraft under all flight conditions which may be met in regular service and must:

(a) Be free from hazard both in itself and in its method of operation;

(b) Be constructed of suitable and dependable materials;

(c) Satisfactorily pass a visual inspection of the construction, layout, and electrical arrangement of all components of the particular aircraft radio equipment and such electrical, humidity, temperature, pressure, vibration, drop, and other tests as the Administrator may prescribe.

INSPECTIONS AND TESTS

16.40 General. The prescribed inspections and tests shall be conducted by the applicant under the supervision of representatives of the Administrator at a designated time and place and in such manner and under such conditions as they may deem necessary.

16 41 Facilities. All engineering, technical, and physical facilities which may be necessary for the conduct of all of the prescribed inspections and tests shall be provided by the applicant.

16.42 Report. The applicant shall submit in duplicate a written report of the results of the prescribed inspections and tests which shall be in such detail as the Administrator may require.

REGULATIONS

16.50 Identification. Type certificated aircraft radio equipment shall be plainly and suitably marked with at least the following information:

(a) Name and address of manufacturer;

(b) Manufacturer's type or model designation;

(c) Weight to the nearest pound and fraction thereof;

(d) Serial number or date of manufacture;

(e) Type certificate number.

16 51 Modification. No change shall be made in the approved specifications under which type certificated aircraft radio equipment is manufactured prior to the approval of such change by the Administrator.

16.52 List changes. The holder of a type certificate for aircraft radio equipment shall keep all lists furnished the Administrator current by submitting revised lists containing all changes made subsequent to original certification."

2. By amending section 40 235 to read as follows:

"40.235 Radio equipment. Applicant shall show that each aircraft is equipped with a type certificated two-way radio telephone having sufficient power to permit communication, under normal operating conditions, with at least one ground station used or to be used by the applicant on the regular or alternate route, and capable of communication with other

aircraft of the applicant in flight. In addition, each aircraft shall be provided with at least one type certificated radio receiving system capable of receiving radio range signals and weather broadcasts. Such receiving system shall include a type certificated audio filter system with suitable switching arrangements to be used in connection with the reception of simultaneous radio range and voice broadcasts: Provided, That such audio filter system will not be required if the airway or route traversed is not equipped with simultaneous type radio range stations."

3. By amending section 40.253 to read as follows:

"40.253 Radio equipment. Same as in section 40.235 and, in addition, applicant shall show that there is installed in each aircraft to be used in instrument or over the-top operation (during day or night) over the proposed route, or part thereof, one additional separate type certificated radio receiving system capable of receiving radio range signals and weather broadcasts. Such receiver system shall normally operate from the main source of electrical supply of the aircraft but, in event of failure of the normal power source, shall be capable of being switched to operate from an independent power source. This system shall include an independent power source capable of operating such receiver continuously for a period of at least 4 hours. It is also required that such receiver operate from an independent antenna or from either of two antennas. Two sets of type certificated headphones and two type certificated microphones shall be carried in the aircraft at all times."

4 By striking the words "an approved" in sections 40.2530 and 40.2531 and inserting in lieu thereof the words "a type certificated".

5 By amending section 40.2532 to read as follows:

"40.2532 Marker beacon receiver. Applicant shall show that there is installed in each aircraft a type certificated ultra-high frequency receiving system operating on the frequency of 75 megacycles. The system shall provide means for the visual and aural indications of signals transmitted by ultra-high frequency positive-cone-of-silence and fan type marker stations. The design of the system shall preclude, insofar as possible, erroneous patterns of the transmitted signal caused by the receiving system. Such receiving system will not be required if the airway or route traversed is not equipped with ultra-high frequency positive-cone-of-silence or fan type marker stations."

6. By striking section 04.503.

7. By amending sections 04.530(e) to read as follows:

"(e) Type certificated radio equipment as specified in Part 40."

8. By amending section 04.532(h) as follows:

"(h) Type certificated radio equipment as specified in Part 40."

By the Civil Aeronautics Board:

/s/ *Thomas G. Early*

Thomas G. Early
Secretary

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