CIVIL AIR REGULATIONS

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PART 18—MAINTENANCE, REPAIR, AND ALTERATION OF AIRFRAMES, POWERPLANTS, PROPELLERS, AND APPLIANCES

Effective June 15, 1952

CIVIL AERONAUTICS BOARD

WASHINGTON, D. C.

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TITLE 14—CIVIL AVIATION

Chapter I—Civil Aeronautics Board

Subchapter A—Civil Air Regulations

PART 18—MAINTENANCE, REPAIR, AND ALTERATION OF AIRFRAMES, POWERPLANTS, PROPELLERS, AND APPLIANCES

Adopted by the Civil Aeronautics Board at its office in Washington, D. C., on the 31st day of March 1952.

Currently effective Part 18 establishes rules for the maintenance, repair, and alteration of certificated aircraft, aircraft engines, propellers, and instruments, and indicates the various operations constituting routine maintenance, repairs, and alterations.

This revision restates and clarifies the standards for the performance of maintenance, preventive maintenance, repair, and alteration of any certificated aircraft or component thereof. It sets forth the classes of persons who are authorized to perform and approve maintenance, preventive maintenance, repair, or alteration, and describes the required records. With certain exceptions, only certificated mechanics, persons operating under the supervision of certificated mechanics, repair stations, and appropriately certificated air carriers are authorized to work on aircraft or aircraft components. One exception is a pilot who will now be authorized to perform preventive maintenance functions on certain personally owned or operated aircraft. The other is a manufacturer who will now be permitted, without obtaining a repair station certificate, to rebuild or alter products for which he holds a type or production certificate or which are manufactured by him in accordance with appropriate specifications approved by the Administrator. In order to perform work on aircraft or aircraft components other than those mentioned, a manufacturer must either hold an appropriate repair station certificate or employ properly rated mechanics for the supervisory and inspection work. In addition, except as permitted for manufacturers, the performance of repair and alterations on instruments and major repairs and alterations on propellers are restricted to appropriately certificated air carriers and to certificated repair stations. An individual mechanic would normally not be equipped to perform such operations, and therefore instrument and major propeller work is restricted to specially rated facilities which must be equipped to perform such work.

It should be noted that Part 18 as revised provides that an aircraft need be flight tested only after it has undergone major repair or major alteration operations. It should be noted also that Part 18 as revised no longer requires that a private pilot shall have at least 200 hours of pilot time before being eligible to conduct a flight test on aircraft after certain repairs or alterations, because this requirement has, in effect, been superseded by the more recently adopted provisions of § 43.21 which contain no such requirement.

Interested persons have been afforded an opportunity to participate in the making of these regulations, and due consideration has been given to all relevant matter presented.

In consideration of the foregoing the Civil Aeronautics Board hereby makes and promulgates a revision of Part 18 of the Civil Air Regulations (14 CFR Part 18, as amended) effective June 15, 1952, to read as follows:

PART 18—MAINTENANCE, REPAIR AND ALTERATION OF AIRFRAMES, POWERPLANTS, PROPELLERS, AND APPLIANCES

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18.30 Standard of performance; general.

AUTHORITY: §§ 18.0 to 18.30 issued under sec. 205, 52 Stat. 984; 49 U. S. C. 425. Interpret or apply sec. 601, 52 Stat. 1007, as amended, sec. 605, 52 Stat. 1010; 49 U. S. C. 551, 554.

APPLICABILITY AND DEFINITIONS

§ 18.0 *Applicability of this part.* This part establishes rules for the performance of maintenance, repair, and alteration of aircraft for which airworthiness certificates have been issued by the Administrator, or any component thereof.[1]

§ 18.1 *Definitions.* (a) As used in this part terms are defined as follows:

(1) *Aircraft.* An aircraft shall mean any contrivance now known or hereafter invented, used, or designed for navigation of or flight in the air, including airframe, powerplant, propeller, and appliances.

(2) *Aircraft engine.* An aircraft engine shall mean an engine used, or intended to be used, for propulsion of aircraft, and includes all parts, appurtenances, and accessories thereof other than propellers.

(3) *Airframe.* Airframe shall mean any and all kinds of fuselages, booms, nacelles, cowlings, fairings, empennages, airfoil surfaces, and landing gear, and all parts, accessories, or controls, of whatever description, appertaining thereto, but not including powerplants and propellers.

(4) *Alteration.* An alteration shall mean any appreciable change in the design of an airframe, powerplant, propeller, or appliance.

(5) *Appliances.* Appliances shall mean instruments, equipment, apparatus, parts, appurtenances, or accessories, of whatever description, which are used, or are capable of being or intended to be used, in the navigation, operation, or control of aircraft in flight (including communication equipment, electronic devices, and any other mechanism or mechanisms installed in or attached to aircraft during flight, but excluding parachutes), and which are not a part or parts of airframes, powerplants, or propellers.

(6) *Appropriately certificated air carrier.* An appropriately certificated air carrier shall mean an air carrier holding an air carrier operating certificate, and which is required, either by its operating certificate or by operations specifications approved by the Administrator, to provide for a continuous airworthiness maintenance and inspection program to

[1] The Administrator publishes Civil Aeronautics Manual 18 which lists operations considered to be maintenance, preventive maintenance, minor and major repairs, and alterations, and sets forth acceptable procedures, methods, and practices under the provisions of this part. This manual may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

be performed by the carrier in accordance with its maintenance manual.

(7) *Approved.* Approved, when used either alone or as modifying such words as aircraft, airframe, powerplant, propeller, appliance, method, or technique, shall mean approved by the Administrator of Civil Aeronautics in accordance with the applicable requirements of this subchapter.

(8) *Authorized representative of the Administrator.* An authorized representative of the Administrator shall mean any employee of the Civil Aeronautics Administration or any private person, authorized by the Administrator to perform particular duties of the Administrator under the provisions of this part.

(9) *Certificated mechanic.* A certificated mechanic shall mean an individual holding a valid mechanic certificate with appropriate ratings issued by the Administrator.

(10) *Certificated repair station.* A certificated repair station shall mean a facility for the maintenance, repair, and alteration of airframes, powerplants, propellers, or appliances, holding a valid repair station certificate with appropriate ratings issued by the Administrator.

(11) *Certificated repairman.* A certificated repairman shall mean an individual holding a valid repairman certificate issued in accordance with Subpart B of Part 24 of this subchapter.

(12) *Component.* A component shall mean a constituent part of an aircraft.

(13) *Instrument.* An instrument shall mean a device utilizing internal mechanism to indicate visually or aurally the attitude, altitude, performance, or operation of an aircraft or any component thereof, and shall include electronic instrumentation and devices for the automatic control of navigation of the aircraft in flight.

(14) *Maintenance.* Maintenance, which includes preventive maintenance, shall mean the inspection, overhaul, repair, upkeep, and preservation of airframes, powerplants, propellers, and appliances, including the replacement of parts.

(15) *Major alteration.* A major alteration of an aircraft or any component thereof shall mean:

(i) An alteration which might cause an appreciable change in its weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness, or

(ii) An alteration which is not accomplished in accordance with accepted practices or cannot be performed by means of elementary operations.

(16) *Major repair.* A major repair to an aircraft or any component thereof shall mean:

(i) A repair which, if improperly accomplished, would adversely affect the structural strength, performance, flight characteristics, powerplant operation, or other qualities affecting airworthiness, or

(ii) A repair which is not accomplished in accordance with accepted practices or cannot be performed by means of elementary operations.

(17) *Manufacturer.* A manufacturer shall mean any person who:

(i) Holds a type or production certificate for and manufactures an aircraft, aircraft engine, propeller, or appliance, or

(ii) Manufactures an approved appliance in accordance with a specification issued by the Administrator.

(18) *Minor alteration.* A minor alteration of an aircraft or any component thereof shall mean an alteration other than a major alteration.

(19) *Minor repair.* A minor repair shall mean any repair other than a major repair.

(20) *Person.* Person shall mean any individual, firm, copartnership, corporation, company, association, joint-stock association, or body politic; and includes any trustee, receiver, assignee, or other similar representative thereof.

(21) *Powerplant.* Powerplant shall mean an aircraft engine and its component parts, and other parts necessary to properly install such engine in an aircraft, but not the propeller (if used).

(22) *Preventive maintenance.* Preventive maintenance shall mean simple or minor preservation operations and the replacement of small standard parts not involving complex assembly operations.[2]

(23) *Propeller.* Propeller shall mean a device for propelling an aircraft through the air, having blades mounted on a power-driven shaft, which when rotated produces by its action on the air a thrust approximately parallel to the longitudinal axis of the aircraft, and shall also include control components normally supplied by the manufacturer of the propeller. It shall also include a system of rotating airfoils which serve either to counteract the effect of the main rotor torque of a rotorcraft or to maneuver a rotorcraft about one or more of its three principal axes.

(24) *Repair.* Repair shall mean the restoration of an airframe, powerplant, propeller, or appliance to a condition for safe operation after damage or deterioration.

(25) *Type.* Type shall mean all aircraft of the same basic design, including all modifications thereto.

§ 18.10 *Persons authorized to perform maintenance, preventive maintenance, repairs, and alterations.*[3] No person shall perform maintenance, preventive maintenance, repairs, or alterations on civil aircraft of United States registry except as provided as follows:

(a) A certificated mechanic or a person who works under the direct supervision of such mechanic may perform maintenance, repairs, and alterations on aircraft or aircraft components including related appliances, appropriate to his rating, but excluding major repairs and alterations to propellors and all repairs and alterations to instruments.

(b) An appropriately rated repair station may perform maintenance, repairs, and alterations on aircraft or aircraft components, including propellers and appliances, as provided in Part 52 of this subchapter.

(c) A certificated pilot may perform, on aircraft owned or operated by him, except aircraft used in air carrier service, such preventive maintenance as may be authorized by the Administrator.

(d) A manufacturer shall be subject to the requirements of paragraphs (a) and (b) of this section, except that he may rebuild or alter:

(1) Any product manufactured by him under a type or production certificate, or

(2) Any product manufactured by him and approved under the terms of a Technical Standard Order or Product and Process Specification issued by the Administrator.

(e) An appropriately certificated air carrier may perform maintenance, repairs, and alterations on aircraft or aircraft components, including propellers and appliances, as provided for in its continuous airworthiness maintenance and inspection program and its maintenance manual.

§ 18.11 *Persons authorized to approve maintenance, repair, and alterations*—(a) *Maintenance, minor repairs, and minor alterations.* No airframe, powerplant, propeller, or appliance which has undergone maintenance, minor repair, or minor alteration may be approved and returned to service except by one of the following:

(1) An appropriately rated certificated mechanic, or

(2) An appropriately rated certificated repair station, or

(3) An appropriately certificated air carrier, or

(4) A manufacturer, if the product has been rebuilt or altered by the manufacturer under the provisions of § 18.10 (d).

(b) *Major repairs and major alterations.* No airframe, powerplant, propeller, or appliance, which has undergone any major repair or major alteration shall be returned to service until such repair or alteration has been examined, inspected, and approved as airworthy by one of the following:

(1) An authorized representative of the Administrator, or

(2) An appropriately rated certificated repair station, if the work has been performed by such repair station in accordance with a manual, specification, or

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[2] The Administrator will publish, as part of Civil Aeronautics Manual 18, the various operations constituting preventive maintenance of the several types of aircraft.

[3] The Communications Act of 1934, as amended, and the rules and regulations of the Federal Communications Commission require that all transmitter adjustments or tests during or coincident with the installation, servicing, or maintenance of a radio station licensed by the Federal Communications Commission which may affect the proper operation of such station shall be made by or under the immediate supervision and responsibility of a person holding a first- or second-class radio operator license issued by the Federal Communications Commission, either radiotelephone or radiotelegraph as may be appropriate for the class of station concerned, who shall be responsible for the proper functioning of the station equipment

other technical data approved by the Administrator,[4] or

(3) A manufacturer, if the product has been rebuilt or altered by the manufacturer under the provisions of § 18.10 (d) and in accordance with a manual, specification, or other technical data approved by the Administrator,[4] or

(4) An appropriately certificated air carrier, if the work has been performed by such air carrier in accordance with a manual, specification, or other technical data approved by the Administrator.[4]

§ 18.12 *Flight tests.* No aircraft which has undergone any major repair or major alteration shall be operated when carrying passengers or being operated for hire, unless such aircraft has thereafter been test flown by a person holding a pilot certificate of at least private grade with appropriate ratings for such aircraft. The pilot shall make a written notation in the aircraft repair and alteration records to the effect that he has flown such aircraft and has found the flight operation to be satisfactory.[5]

§ 18.13 *Aircraft operating limitations.* When a major repair or major alteration results in any change in the aircraft operating limitations or data contained in the approved airplane flight manual, appropriate amendments to the aircraft operating limitations shall be made in the form and manner approved by the Administrator.

MAINTENANCE, REPAIR, AND ALTERATION RECORDS

§ 18.20 *Required records and entries.* A permanent record of every maintenance (excepting preventive maintenance), repair, rebuilding, or alteration of any airframe, powerplant, propeller, or appliance shall be maintained by the owner (or in the case of an aircraft by the registered owner) in a logbook or other permanent record satisfactory to the Administrator, which shall contain at least the information specified in § 18.21. Entries in such records shall be made or caused to be made by the individual, repair station, air carrier, or manufacturer performing the work.

§ 18.21 *Content of repair and alteration records.* The record of all maintenance, repair, rebuilding, and alteration of any airframe, powerplant, propeller, or appliance or the installation or removal of an appliance shall contain the information set forth in paragraphs (a) through (d) of this section:

(a) An adequate description of the work performed,

(b) The date of completion of the work performed,

(c) The name of the individual, repair station, manufacturer, or air carrier performing the work,

(d) The signature, and if a certificated mechanic or certificated repairman the certificate number, of the person approving as airworthy the work performed and authorizing the return of the aircraft or component to service.

§ 18.22 *Form and disposition of major repair or major alteration records.* All major repairs and major alterations to an airframe, powerplant, propeller, or appliance shall be entered on a form acceptable to the Administrator. Such form shall be executed in duplicate and shall be disposed of in such manner as, from time to time, may be prescribed by the Administrator.

§ 18.23 *Provisions for air carrier records.* Required records and entries may be replaced, in the case of maintenance, repairs, or alterations to appropriately certificated air carrier aircraft, by a suitable system of recording maintenance, repairs, alterations, and signatures of responsible personnel: *Provided*, That the information specified in § 18.21 is furnished.

PERFORMANCE RULES

§ 18.30 *Standard of performance; general.* All maintenance, repairs, and alterations shall be accomplished in accordance with methods, techniques, and practices approved by or acceptable to the Administrator.

(a) *Maintenance and repair.* All maintenance and repair shall be accomplished in such a manner and the materials used shall be of such quality and strength that the condition of the part of the aircraft on which such work has been performed shall, with regard to aerodynamic and mechanical function, structural strength, resistance to vibration and deterioration, and other qualities affecting airworthiness, be at least equivalent to its original or properly altered condition.

(b) *Alterations.* All alterations shall be so designed and accomplished that the altered airframe, powerplant, propeller, or appliance will comply with the airworthiness requirements for the airframe, powerplant, propeller, or appliance.

NOTE: Specific record or reporting requirements subsequently prescribed will be subject to the approval of the Bureau of the Budget pursuant to the Federal Reports Act of 1942.

By the Civil Aeronautics Board.

[SEAL] M. C. MULLIGAN,
Secretary.

[F. R. Doc. 52-3918; Filed, Apr. 4, 1952; 8:49 a. m.]

[4] Major repairs and major alterations whose design has not previously been approved by the Administrator may require the submittal of technical data and/or flight tests in order to establish compliance with the applicable airworthiness provisions. Examples of such major alterations for which it would be desirable to contact a representative of the Administrator prior to accomplishment of the alteration are given in Civil Aeronautics Manual 18.

[5] The objectives of the flight test and the technical qualifications which should be possessed by the test pilot will be found in Civil Aeronautics Manual 18. (Also see footnote 4 supra, concerning major alteration which may require additional flight testing to determine compliance with the applicable airworthiness requirements.)

NOTICE

Advise the Civil Aeronautics Board, Washington 25, D. C., that you have purchased this part of the Civil Air Regulations and that agency will supply you with copies of amendments which have been issued since this printing. Be sure to specify the number of this part, otherwise your request cannot be filled.

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