CIVIL AERONAUTICS BOARD

WASHINGTON, D. C.

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CIVIL AIR REGULATIONS

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# PART 18—MAINTENANCE, REPAIR AND ALTERATION OF CERTIFICATED AIRCRAFT AND OF AIRCRAFT ENGINES, PROPELLERS AND INSTRUMENTS




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# CIVIL AIR REGULATIONS

## PART 18—MAINTENANCE, REPAIR AND ALTERATION OF CERTIFICATED AIRCRAFT AND OF AIRCRAFT ENGINES, PROPELLERS AND INSTRUMENTS [1]

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### 18.1 General.

### 18.10 Definitions.

As used in this Part:

(1) "Aircraft engine" means an aircraft engine approved by the Administrator.

(2) "Propeller" means a propeller approved by the Administrator.

(3) "Instrument" means an instrument installed, for other than purely experimental purposes, in a certificated aircraft.

(4) "Manufacturer" means (1) the holder of the type certificate, or approval by the Administrator, for an aircraft, aircraft engine, or propeller, or of the current rights, under a licensing arrangement, to the benefits of such type certificate or approval; or (2) the manufacturer of a part or accessory of a certificated aircraft; or (3) the manufacturer of an instrument which is installed in a certificated aircraft: *Provided*, That such manufacturer shall have in his employ a properly certificated mechanic in direct charge of maintenance, repair or alteration operations.

**18.2 Routine maintenance.** Routine maintenance is defined as simple or minor preservation operations including but not limited to the adjustment of rigging and clearances, and the replacement of small standard parts not involving complex assembly operations.

**18.3 Repairs.** A repair is any operation other than routine maintenance which is required to restore an aircraft, aircraft engine, propeller, or instrument to a condition for safe operation, including the mending or replacement of damaged or deteriorated parts.

**18.30 Minor repairs.** Minor repairs are elementary repair operations executed in accordance with standard practices and not within the definition of major repairs.

**18.31 Major repairs.** Major repairs are complex repair operations of vital importance to the airworthiness of an aircraft, including but not limited to:

(a) Straightening, splicing, welding and similar operations, when the strength of important structural members might be appreciably affected thereby.

(b) Operations requiring complicated or unconventional techniques or equipment.

**18.4 Alterations.** An alteration is any appreciable change in the design of an aircraft, aircraft engine, propeller, or instrument.

**18.40 Minor alterations.** A minor alteration is:

(a) An alteration having no appreciable effect on the weight, balance, structural strength, power-plant operation, flight characteristics or other characteristics affecting the airworthiness of an aircraft; or

(b) An alteration for which specific plans and instructions have been approved by the Administrator and which can be executed by means of elementary operations.

[1] Civil Aeronautics Manual 18, which may be secured from the Civil Aeronautics Administration, Washington, D. C., describes in detail the operations which the Administrator of Civil Aeronautics considers to be routine maintenance, minor and major repairs, and minor and major alterations. It sets forth in detail repair methods, techniques, and practices which the Administrator has found acceptable in the execution of repairs in accordance with these regulations. It also describes forms, scope of technical data, and records prescribed by the Administrator in accordance with this Part.

**18.41 Major alterations.** Major alterations are all alterations not within the definition of minor alterations.

**18.5 Rules and procedures for maintenance, repairs and alterations.**

**18.50 Agencies authorized to perform maintenance, repair and alteration operations.** Maintenance, repair, and alteration operations shall be performed only by: (1) A certificated mechanic having the proper rating or a person working under the direct supervision of such mechanic; or (2) a certificated repair station having the proper rating; or (3) the manufacturer of the aircraft or part of the aircraft to be repaired. *Provided,* That all instrument repairs and alterations and propeller major repairs and major alterations shall be performed only by a certificated repair station having the proper rating or by the instrument or propeller manufacturer.

**18.51 Provision for approval of major repairs and major alterations.** No aircraft, aircraft engine, or propeller which has undergone any major repair or major alteration shall be returned to service until examined, inspected and approved by a duly authorized representative for the Administrator unless such repair or alteration has been executed in accordance with a manual or specification approved by the Administrator [2] and performed by a certificated repair station of the proper rating or by the manufacturer.

**18.52 Flight tests.** When an aircraft or aircraft engine or propeller thereof has undergone a maintenance, minor repair or minor alteration operation which may have changed its flight characteristics appreciably or substantially affected its operation in flight, or has undergone a major repair or major alteration, such aircraft shall, prior to carrying passengers, be test-flown by a pilot having at least 200 solo hours and holding at least a private pilot certificate and appropriate rating for the aircraft to be test-flown.

**18.53 Recording of repairs and alterations.**

**18.530 Minor repair and minor alteration log-book entries.** An adequate description of every minor repair or minor alteration of an aircraft, aircraft engine, or propeller shall be entered in the appropriate log book over the signature and certificate number of the mechanic directly in charge of or performing such repair or alteration and in case a manufacturer or a certificated repair station makes said repair or alteration the appropriate log book shall also be signed by an authorized official of such agency. The installation of an instrument in an aircraft shall be recorded in the aircraft log book by the agency making the installation.

**18.531 Major repair and major alteration records.** A repair agency performing a major repair or major alteration on an aircraft, aircraft engine, or propeller, shall execute such Repair and Alteration Forms as may be prescribed and furnished by the Administrator, and shall deliver a duplicate copy of any such Form to the owner of the aircraft and make proper entries on the appropriate page of the Aircraft Operation Record.

**18.532 Provision for air carrier records.** Log-book and Aircraft Operation Record entries required in this Part may be replaced, in the case of repairs or alterations to scheduled air carrier aircraft, by a suitable system of recording repairs, alterations and signatures of responsible personnel.

**18.6 Design, techniques, and materials.** Repairs shall be so executed and materials of such strength and quality shall be used that the condition of the repaired aircraft, aircraft engine, propeller, or instrument shall be at least equivalent to its original or a properly altered condition in regard to aerodynamic and mechanical function, structural strength, and resistance to vibration and deterioration, and all other qualities affecting airworthiness. Alterations shall be so designed and executed that the altered aircraft, aircraft engine, propeller, or instrument will comply with the airworthiness requirements in effect when the particular model of the aircraft or part of the aircraft was originally certificated and, in addition, with particular provisions of the current airworthiness requirements rendered necessary for safe operation by the alteration.

[2] Such manual or specification may, for example, be issued by the manufacturer, a certificated repair station, or by the Administrator. All such manuals or specifications issued by parties other than the Administrator must be approved by him.