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CIVIL AIR REGULATIONS

PART 53—MECHANIC SCHOOL CERTIFICATES

Effective June 15, 1952

CIVIL AERONAUTICS BOARD

WASHINGTON, D. C.

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PART 53—MECHANIC SCHOOL CERTIFICATES

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

Currently effective Part 53 establishes certification and rating requirements for mechanic schools, provides for aircraft, aircraft engine, and combined aircraft and aircraft engine ratings and curricula, and establishes basic operating rules for the holders of mechanic school certificates. This amendment revises these regulations and establishes new requirements for the issuance of mechanic school certificates and ratings and basic operating rules for the holders thereof. Under the terms of this revision the only ratings to be issued are airframe and powerplant which correspond to the previously issued aircraft and aircraft engine ratings, respectively. The requirements for facilities, equipment, material, and personnel are stated as general standards to be met by each applicant. The type and amount of such facilities, equipment, materials, and personnel must be determined by the requirements of the particular rating sought and the maximum number of students expected to be in attendance at any particular time. Compliance with such general standards is the primary responsibility of the applicant.

No provision has been made for the certification or operation of schools for instrument, propeller, radio, or accessory mechanics since the work performed on aircraft other than airframe or powerplant (with the exception of minor repairs and alterations to propellers) is to be performed only by the certificated repair station, the manufacturer, or the appropriately certificated air carrier. It should be noted, however, that the part does not in any way purport to prohibit the establishment of specialized courses or schools for such mechanics or to prevent the graduates of such schools from obtaining employment as certificated repairmen in repair stations or with air carriers. (See revised Parts 24 and 52 adopted concurrently with this part.)

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 53 of the Civil Air Regulations (14 CFR, Part 53, as amended) effective June 15, 1952 to read as follows:

PART 53—MECHANIC SCHOOL CERTIFICATES

APPLICABILITY AND DEFINITIONS

SEC.
53.0 Applicability of this part.
53.1 Definitions.

CERTIFICATION RULES

53.5 Application for certificate.
53.6 Issuance.
53.7 Duration.
53.8 Exchange of certificates.
53.9 Display.
53.10 Change of location.
53.11 Inspection.
53.12 Nontransferability of certificate.
53.13 Advertising.
53.14 Ratings.

CERTIFICATE REQUIREMENTS

53.20 Certificate requirements; general.
53.21 Number of students.
53.22 Facilities, equipment, and materials; general.
53.23 Modification of facilities, equipment, and materials.
53.24 Required space facilities.
53.25 Required instructional equipment.
53.26 Required materials, tools, and shop equipment.
53.27 Curriculum; general.
53.28 Curriculum; number of hours.
53.40 Airframe curriculum.
53.41 Powerplant curriculum.
53.42 Instructors.

OPERATING RULES

53.50 Operating rules; general.
53.51 Quality of instruction.
53.52 Hours of attendance.
53.53 Examinations.
53.54 Transcript of grades.
53.55 Graduation certificate.
53.56 Required student records.
53.57 Maintenance of facilities, equipment, and material.
53.58 Reports.

AUTHORITY: §§ 53.0 to 53.58 issued under sec. 205, 52 Stat. 984; 49 U. S. C. 425. Interpret or apply sec. 601, 52 Stat. 1007, as amended, secs. 607, 608, 52 Stat. 1011; 49 U. S. C. 551, 557, 558.

APPLICABILITY AND DEFINITIONS

§ 53.0 *Applicability of this part.* This part establishes the requirements for the issuance of mechanic school certificates and ratings and basic operating rules for the holders thereof.

§ 53.1 *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) *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.

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

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

(9) *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.

(10) *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.

(11) *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.

(12) *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).

(13) *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.

(14) *Radio.* Radio shall mean an appliance and related apparatus for the transmission and or reception of radio signals, including electronic appliances used for intercommunication.

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

CERTIFICATION RULES

§ 53.5 *Application for certificate.* Application for a mechanic school certificate and ratings, or any modification or amendment thereof, shall be made on a form and in a manner prescribed by the Administrator.

§ 53.6 *Issuance.* A mechanic school certificate with appropriate ratings prescribing such operations, specifications and limitations as may be reasonably required in the interest of safety shall be issued to an applicant who the Administrator finds is properly and adequately equipped, has sufficient qualified personnel, and is able to conduct a mechanic school in accordance with the requirements hereinafter specified. No person may operate as a certificated mechanic school without, or in violation of, the terms of a mechanic school certificate.

§ 53.7 *Duration.* A mechanic school certificate with appropriate ratings shall remain in effect until surrendered, suspended, revoked, or otherwise terminated by order of the Board, after which it shall be returned to the Administrator.

§ 53.8 *Exchange of certificates.* The Administrator shall, not later than one year from the effective date of this part, reinspect all mechanic schools certificated prior to the effective date of this part. Upon the conclusion of each reinspection the existing certificate and ratings of such mechanic school shall expire, and the certificate shall be returned to the Administrator. A new certificate with appropriate ratings may be issued in accordance with the provisions of this part, if such reinspection indicates compliance herewith. Until such reinspection has been completed and a new certificate has been issued, a mechanic school shall comply with the requirements of this part in effect immediately prior to this revision.

§ 53.9 *Display.* The mechanic school certificate with appropriate ratings shall be on display in the mechanic school for which the certificate was issued and available for inspection by any authorized representative of the Administrator or the Board.

§ 53.10 *Change of location.* No change in the location of a certificated mechanic school shall be made without the prior written approval of the Administrator. Any change in location of a mechanic school invalidates the mechanic school certificate, unless the change has been approved by the Administrator.

§ 53.11 *Inspection.* An authorized representative of the Administrator or the Board shall be permitted at any time to make inspections or examinations to determine a mechanic school's compliance with the provisions of this subchapter.

§ 53.12 *Nontransferability of certificate.* A mechanic school certificate is not transferable.

§ 53.13 *Advertising.* No certificated mechanic school shall in any manner make any statement pertaining to such school which is false or is designed to mislead any person contemplating enrollment in such school. Any advertising which indicates that such school is approved by the Administrator shall clearly differentiate between those courses which have been approved by the Administrator and those which have not.

§ 53.14 *Ratings.* The following mechanic school ratings may be issued:

(a) Airframe;

(b) Powerplant;

(c) Airframe and powerplant.

CERTIFICATE REQUIREMENTS

§ 53.20 *Certificate requirements; general.* No applicant for a mechanic school certificate or a rating shall be issued such certificate or rating until the appropriate requirements of §§ 53.21 through 53.42 are met.

§ 53.21 *Number of students.* Each applicant shall state in his application the maximum number of students expected to be instructed at any particular time.

§ 53.22 *Facilities, equipment, and materials; general.* Each applicant shall have at least the facilities, equipment, and materials specified in §§ 53.24 through 53.26 appropriate to the rating sought, and such additional facilities, equipment, and materials as are determined by the Administrator to be necessary for a particular curriculum to train individuals to perform properly the work appropriate to the mechanic rating sought.[1]

§ 53.23 *Modification of facilities, equipment, and materials.* No substantial modification or change in the facilities, equipment, and materials approved by the Administrator for a particular curriculum shall be made without the prior written approval of the Administrator.[2]

§ 53.24 *Required space facilities.* Each applicant shall have such of the following facilities as are appropriate to the rating sought which the Administrator shall determine to be adequate or necessary to accommodate the maximum number of students expected to be instructed at any particular time. Such facilities shall be properly heated, lighted, and ventilated.

(a) A drafting room with drafting tables and equipment,

(b) A stock room set up to insure the proper segregation of materials,

(c) Suitable separate space having proper ventilation and temperature control for doping,

(d) Suitable separate space equipped with adequate cleaning equipment,

(e) Suitable separate space provided with test stands and test clubs for running-in engines,

(f) Suitable separate space provided with adequate equipment to disassemble, repair, assemble, test, service, and inspect the following:

(1) Ignition, electrical equipment, and appliances;

(2) Carburetors and fuel systems;

(3) Hydraulic and vacuum systems as applying to the actuation of aircraft, engines, and their appliances;

(g) Suitable space with adequate equipment for the disassembly, inspection, assembly, and rigging of an aircraft;

(h) Suitable space with adequate equipment for the disassembly, inspection, overhaul, assembly, and timing of engines.

§ 53.25 *Required instructional equipment.* Each applicant shall have such of the following instructional equipment as is appropriate to the rating sought which need not be in an airworthy condition and which may have been damaged, but it shall have been repaired sufficiently for complete assembly. All airframes, powerplants, propellers, appli-

[1] The Administrator publishes Civil Aeronautics Manual 53 in which is set forth an outline of the equipment, facilities, and materials which are necessary for compliance with this part.

[2] Requests for modifications or changes should be submitted to the Regional Administrator of Civil Aeronautics for the region in which the mechanic school is located.

ances, and components thereof on which instruction is to be given and on which practical experience is to be obtained shall be sufficiently diversified to indicate the different manners of construction, assembly, inspection, and operation when installed in an aircraft for use, and shall be provided in sufficient number to assure that not more than eight students shall work on any single unit thereof at any one time.

(a) Various types of fuselages, wings (wing sections if of aircraft of more than 12,500 lbs. maximum certificated takeoff weight), control surfaces, landing gear, radios, instruments, propellers (including propellers of fixed type, wood and metal, and adjustable and controllable metal), and aircraft reciprocating engines (including at least one opposed type, one in-line type, one radial type of not less than 350 horsepower, and one supercharged type).

(b) At least one modern-type aircraft complete with powerplant, propeller, instruments, radio (two-way), landing lights, flares, and other items of equipment and accessories on which a mechanic might be required to work and with which he should be familiar.

§ 53.26 *Required materials, tools, and shop equipment.* Each applicant shall have an adequate supply of materials and tools and such of the following shop equipment, special tools, and other miscellaneous tools and equipment as are appropriate to the rating sought and used in the construction, maintenance, and repair of aircraft to insure that each student will receive proper instruction in the construction, maintenance, and repair of aircraft. All tools and shop equipment shall be in satisfactory working condition and shall be of a type proper for the purpose for which they are to be used:

(a) Suitable equipment for checking the alignment of crankshafts and master and connecting rods;

(b) Air riveting hammer with controls and indicator;

(c) Heat-treating equipment for rivets and small structural parts;

(d) Bending and forming tools and equipment;

(e) Suitable equipment for sand, seed, or hull blasting;

(f) Cable splicing equipment;

(g) Suitable equipment for localized etching of propellers;

(h) Suitable equipment for measuring propeller pitch angles,

(i) Suitable assortment of go and no-go gauges;

(j) Suitable equipment for steaming and bending aircraft wood;

(k) Suitable equipment for making and testing glued wood joints;

(l) Air compressor with suitable attachments, and

(m) Battery charger and testers.

§ 53.27 *Curriculum; general.* An applicant shall offer a curriculum designed to qualify the individuals undergoing instruction to perform the duties of a mechanic for a particular rating or ratings. Each curriculum shall provide at least the number of hours of instruction specified in § 53.28 and shall include instruction in the subjects specified in §§ 53.40 and 53.41. Each curriculum shall be approved by the Administrator, and no change therein shall be made without his prior written approval.

§ 53.28 *Curriculum; number of hours.* At least the following number of hours of instruction shall be offered for each of the following curricula:

(a) Airframe; 960 hours.

(b) Powerplant; 960 hours.

(c) Combined airframe and powerplant; 1,650 hours.

§ 53.40 *Airframe curriculum.* The airframe curriculum shall include the following subjects:

(a) Parts 1, 3, 4a, 4b, 5, 6, 8, 9, 18, 24, 43, 52, and 62 of this subchapter, as amended, appropriate to the curriculum;

(b) Tools, instruments, equipment, their use and care;

(c) Shop practice and procedures, use of forms;

(d) Woodworking;

(e) Welding steel structures and fittings;

(f) Aluminum alloy structures and fittings;

(g) Sheet metal, steel, stainless steel, terneplate, aluminum and aluminum alloy;

(h) Welding, riveting, and heat-treating of steel, stainless steel, aluminum, aluminum alloy, structure, stock, and fittings;

(i) Controls and control surfaces;

(j) Splicing cables, bonding, brazing, and soldering;

(k) Hydraulic systems;

(l) Vacuum systems;

(m) Electrical systems;

(n) Fuel systems;

(o) Covering, fabric and stressed skin;

(p) Landing gear assembly;

(q) Assembly and rigging;

(r) Appliances: Instruments, radio, floats, flares, heaters, etc.;

(s) Inspection of certificated aircraft, use of forms, etc.;

(t) Aircraft theory and practice;

(u) Mechanical drawing, and

(v) Aircraft weight and balance.

§ 53.41 *Powerplant curriculum.* The powerplant curriculum shall include the following subjects:

(a) Parts 1, 3, 4a, 4b, 6, 8, 9, 13, 14, 18, 24, 43, 52, and 62, of this subchapter, as amended, appropriate to the curriculum;

(b) Instruments and equipment, their use and care;

(c) Shop practice and procedures, use of forms;

(d) Fundamental powerplant requirements;

(e) Mechanical drawing;

(f) Powerplant design and construction;

(g) Carburetor and fuel injection systems;

(h) Ignition systems;

(i) Supercharging systems;

(j) Starting, generating, and regulating systems;

(k) Fuels and fuel systems;

(l) Lubrication systems;

(m) Operation and trouble shooting;

(n) Disassembly, overhaul, repair, and assembly;

(o) Inspection, use of inspection tools, theory of magnaflux and fluorescent penetrant;

(p) Block testing;

(q) Propeller installation and maintenance;

(r) Powerplant installation;

(s) Powerplant maintenance;

(t) Turbojet, turboprop, and compound engines;

(u) Theory and principles of powerplant operation;

(v) Aircraft powerplant development, and

(w) Aircraft weight and balance.

§ 53.42 *Instructors.* An applicant shall have that number of instructors holding appropriate mechanic certificates and ratings and such other qualified personnel as the Administrator determines necessary to provide adequate instruction and supervision of the students.

OPERATING RULES

§ 53.50 *Operating rules; general.* All holders of mechanic school certificates with appropriate ratings shall, in the conduct of the school, comply with the operating rules set forth in §§ 53.51 through 53.58.

§ 53.51 *Quality of instruction.* The quality of instruction shall be such that at least 80 percent of the students who apply within 60 days after graduation for mechanic certificates and ratings appropriate to the curriculum from which they were graduated will be able to qualify for such certificates and ratings.

§ 53.52 *Hours of attendance.* No student shall be required to attend any class or classes of instruction for more than 8 hours in any day, or more than 6 days or 40 hours in any seven-day period.

§ 53.53 *Examinations.* Upon completion of each subject included in any approved curriculum each student shall be given an appropriate examination.

§ 53.54 *Transcript of grades.* A certificated mechanic school shall furnish a transcript of grades for each graduate and each student leaving the school prior to graduation. The transcript shall be properly authenticated by an official of the school, and it shall state the curriculum and courses in which the student was enrolled, whether the student satisfactorily completed the particular curriculum and courses, and the final grades received in each course.

§ 53.55 *Graduation certificate.* A certificated mechanic school shall furnish each graduate a graduation certificate properly authenticated by an official of the school. Each graduation certificate shall show the date of graduation.

§ 53.56 *Required student records.* A certificated mechanic school shall maintain a current record of each student enrolled, showing the student's attend-

ance, courses in which enrolled, examinations, and grades. These records shall be retained by the school for at least 2 years from the date of termination of enrollment. During such period the records shall be available for inspection by an authorized representative of the Administrator or the Board.

§ 53.57 *Maintenance of facilities, equipment, and material.* The holder of a mechanic school certificate shall maintain all facilities, equipment, and material in conformity with the standards required for the original issuance of the certificate.

§ 53.58 *Reports.* On the 1st day of January and July of each year, and at such other times as the Administrator may require, every holder of a mechanic school certificate shall transmit to the Administrator a correct and completely executed report on the form prescribed and furnished by the Administrator. Such reports shall include the following information as to students enrolled in the course or courses approved by the Administrator:

(a) The names of all students enrolled;

(b) The course or courses for which they are enrolled;

(c) The names of the students who have been graduated within the period covered by the report and the course or courses from which graduated;

(d) The names of all students dropped from enrollment within the period covered by the report and the reasons therefor.

NOTE: The reporting and record-keeping requirements of this part have been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

By the Civil Aeronautics Board.

[SEAL] M. C. MULLIGAN,
Secretary.

[P. R. Doc. 52-3921; Filed, Apr. 4, 1952; 8:50 a. m.]

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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