Part 24

CIVIL AERONAUTICS BOARD
BUREAU OF SAFETY REGULATION
WASHINGTON, D. C.

December 9, 1949

CIVIL AIR REGULATIONS DRAFT RELEASE NO. 49-7

SUBJECT: Maintenance, repair, and alteration of aircraft, mechanic certificates, repair station certificates, and mechanic school certificates

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The Bureau of Safety Regulation has under consideration the attached copies of proposed revisions of Parts 18, 24, 52, and 53. These proposed revisions are being published concurrently because of the close interrelationship of the subject matter of these parts. The explanatory statements contained in each proposal set forth the substance of the amendments which are being considered.

These proposals have been published in the Federal Register as notices of proposed rule making.

The Bureau desires that all persons holding mechanic, repair station, or mechanic school certificates and all other interested persons in the aviation industry who will be affected by the requirements of these proposals be fully informed as to the effect of these proposals upon their operation. To accomplish this objective the proposed rules are being circulated to the aviation industry in order to afford interested persons ample opportunity to submit to the Bureau such comments as they may desire. In order that such persons may have complete information readily available without the necessity of referring to other documents, we have attached exact copies of the proposals published in the Federal Register.

Because of the large number of comments which we anticipate receiving in response to this draft release, we will be unable to acknowledge receipt of each reply. However, you may be assured that all comment will be given careful consideration. As a result thereof the proposed revisions when finally adopted by the Board may be considerably changed in the light of such comments.

It will be noted that in order to receive consideration, comments should be received by the Bureau not later than February 1, 1950.

Robert L. Froman
For
John M. Chamberlain
Director

[14 CFR, Part 18]

MAINTENANCE, REPAIR, AND ALTERATION OF AIRFRAMES, POWERPLANTS, PROPELLERS, AND APPLIANCES

NOTICE OF PROPOSED RULE MAKING

Pursuant to authority delegated by the Civil Aeronautics Board to the Bureau of Safety Regulation, notice is hereby given that the Bureau will propose to the Board a revision of Part 18 as hereinafter set forth.

Interested persons may participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. Communications should be submitted to the Civil Aeronautics Board, attention Bureau of Safety Regulation, Washington 25, D. C. All communications received not later than February 1, 1950, will be considered by the Board before taking further action on the proposed rule.

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

The proposed revision restates and clarifies the standards for the performance of maintenance, repairs, and alterations of any certificated aircraft, or any component thereof. This proposal also sets forth the classifications of persons authorized to perform and to approve maintenance, repair, and alteration operations, and describes the required maintenance, repair, and alteration records.

It will be noted that we are proposing several substantive changes. One such change, dictated by the requirements of section 610 (a) (3) of the act, would require a manufacturer to secure a repair station certificate with appropriate ratings and to employ certificated airmen in order to perform maintenance, overhaul, or repair functions. (See proposed revision of Part 52 published concurrently herewith for proposed repair station certificate requirements.) We do not believe that such a requirement will place any undue burden upon such manufacturers because, in most instances, manufacturers currently performing maintenance, repair, and alteration work do meet the standards proposed in the revision of Part 52.

Another important change is that we are proposing to authorize a certificated pilot to perform preventive maintenance on aircraft owned or operated by him. "Preventive maintenance" is defined in this proposal to mean simple or minor preservation operations and the replacement of small standard parts not involving complex assembly operations. It is anticipated that the Administration will publish, as part of Civil Aeronautics Manual 18, the various operations constituting preventive maintenance of the several types of aircraft.

We are also proposing to require that an aircraft be flight tested only after it has undergone major repair or major alteration operations, thus eliminating the requirement that an aircraft be test flown after it has undergone maintenance, minor repair, or minor alteration operations. Further, we propose to permit a certificated pilot, appropriately rated for the aircraft to be test flown, to make such test flight in lieu of the current requirement that such pilot have at least 200 hours of flight time as pilot. We do not believe that either of these provisions will result in a lowering of the performance standards by those accomplishing such operations.

The proposed revision of Part 18 is attached hereto.

This revision is proposed under the authority of Title VI of the Civil Aeronautics Act of 1938, as amended.

(Sec. 205 (a), 52 Stat. 984; 49 U. S. C. 425 (a). Interpret or apply secs. 601–610, 52 Stat. 1007–1012; 49 U. S. C. 551–560; act of July 1, 1948; 62 Stat. 1216)

Dated December 9, 1949, at Washington, D. C.

By the Bureau of Safety Regulation.

[SEAL] JOHN M. CHAMBERLAIN,
Director.

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

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

§ 18.1 *Definitions.* (a) As used in this part the words listed below shall be 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) *Airframe.* Airframe shall mean all parts of an aircraft less powerplant, propeller, and appliances.

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

(4) *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.

(5) *Approved.* Approved, when used either alone or as modifying such words as aircraft, airframe, powerplant, propeller, appliances, methods, or techniques, shall mean approved by the Administrator of Civil Aeronautics in accordance with the applicable requirements of the Civil Air Regulations.

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

(7) *Certificated repair station.* A certificated repair station shall mean a repair station holding an air agency certificate with appropriate ratings issued by the Administrator.

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

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

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

(i) An alteration which results in an appreciable change in its weight, balance, structural strength, powerplant operation, or flight characteristics; or

(ii) An alteration which cannot be executed by means of elementary operations.

(11) *Major repair.* A major repair to an aircraft or any component thereof shall mean a repair the accomplishment of which might affect the basic structure and/or the performance of an aircraft or any component thereof.

(12) *Minor alteration.* A minor alteration of an aircraft or any component thereof shall mean an alteration other than a major alteration, including any alteration which can be executed by means of elementary operations.

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

(14) *Powerplant.* Powerplant shall mean an aircraft engine and its component parts, less propeller.

(15) *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 parallel to the longitudinal axis of the aircraft.

(16) *Preventive maintenance.* Preventive maintenance shall mean simple or minor preservation operations and replacement of small standard parts not involving complex assembly operations.

[1] The Administrator will publish Civil Aeronautics Manual 18 which sets forth a list of operations considered to be maintenance (including preventive maintenance), repair, and alteration. This manual may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., upon the payment of 60 cents. Remittances should be by check or money order, payable to the Superintendent.

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

(18) *Type.* Type shall mean all aircraft of the same basic design including all modifications thereto except those modifications which result in a change in handling or flight characteristics.

PERFORMANCE RULES

§ 18.10 *Standard of performance; general.* All maintenance, repair, and alterations shall be accomplished in accordance with approved methods, techniques, and practices.

§ 18.11 *Standard of performance; 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.

§ 18.12 *Standard of performance; 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. Prior to accomplishing major alterations, such alterations shall be approved by the Administrator.

§ 18.13 *Persons authorized to perform maintenance, preventive maintenance, repair, and alterations.* (a) The following persons are authorized to perform maintenance, repair, and alterations: [2]

(1) A certificated mechanic.

(2) A person who performs such work under the direction and supervision of a certificated mechanic.

(b) A certificated pilot may perform on aircraft owned or operated by him such preventive maintenance as may be authorized by the Administrator.

§ 18.14 *Persons authorized to approve maintenance, repair, and alterations.* (a) Any airframe, powerplant, propeller, or appliance which has undergone maintenance, minor repair, or minor alteration may be approved and returned to service by any person authorized to perform such work and by a certificated repair station.

(b) No airframe, powerplant, propeller, or appliance, which has undergone any major repair or major alteration shall be returned to service until examined, inspected, and approved as airworthy by a certificated repair station, by a qualified officer or employee of the Administrator, or by a private person whom the Administrator has found to be properly qualified by experience, skill, and ability to make such examinations or inspections in lieu of those made by his officers or employees and whom he has designated for that purpose.

§ 18.15 *Flight tests.* When an aircraft has undergone any major repair or major alteration, such aircraft, prior to carrying passengers, shall be test flown by a pilot appropriately rated 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.

MAINTENANCE, REPAIR, AND ALTERATION RECORDS

§ 18.21 *Required records.* (a) A record of every repair or alteration of any airframe, powerplant, propeller, or appliance shall be kept. When major repairs and major alterations result in any change in the aircraft limitations or data contained in the aircraft flight manual, appropriate amendments shall be made thereto.

(b) No record of any maintenance of any airframe, powerplant, propeller, or appliance need be kept.

§ 18.22 *Content of repair and alteration records.* The record of every repair and alteration of any airframe, powerplant, propeller, or appliance shall contain the following information:

(a) The date of such repair or alteration and, if an appliance is installed, the date of installation.

(b) An adequate description of the repair or alteration work.

(c) The signature and certificate number of the mechanic performing or supervising such repair or alteration, or the installation of an appliance; or, in the event such work is performed at a certificated repair station, the signature of an individual authorized by such repair station to sign such record.

§ 18.23 *Form and disposition of repair or alteration records.* (a) All major repairs and major alterations of an airframe, powerplant, propeller, or appliance shall be entered on a form prescribed by the Administrator. Such form shall be executed in duplicate; the original shall be retained by the certificated mechanic or repair station performing such work, and the duplicate shall be delivered to the owner of the aircraft so repaired or altered.

(b) The record of minor repairs and minor alterations of an airframe, powerplant, propeller, or appliance may be kept in any form: *Provided*, That such form contains at least the information specified by § 18.22.

§ 18.24 *Records maintained by scheduled air carriers.* A scheduled air carrier may establish its own system for recording repairs and alterations: *Provided*, That the information specified in § 18.22 is furnished.

[F. R. Doc. 49-10057; Filed, Dec. 15, 1949; 8:50 a. m.]

[2] See also Part 35 for the limited privilege granted flight engineers.

[14 CFR, Part 24]

[Special Civil Air Reg. SR–332]

MECHANIC CERTIFICATES AND LIMITED MECHANIC CERTIFICATES WITH PROPELLER AND APPLIANCE RATINGS

NOTICE OF PROPOSED RULE MAKING

Pursuant to authority delegated by the Civil Aeronautics Board to the Bureau of Safety Regulation, notice is hereby given that the Bureau will propose to the Board a revision of Part 24 and an extension of Special Civil Air Regulation SR–332.

Interested persons may participate in the making of the proposed rules by submitting such written data, views, or arguments as they may desire. Communications should be submitted to the Civil Aeronautics Board, attention Bureau of Safety Regulation, Washington 25, D. C. All communications received not later than February 1, 1950, will be considered by the Board before taking further action on the proposed rules.

Currently effective Part 24 establishes requirements for the certification and rating of aircraft mechanics and aircraft engine mechanics, authorizes a certificated mechanic to pack parachutes under specified conditions, and provides for the submission of stated periodic activity reports. This regulation also provides that an individual, in order to return to service any aircraft or component thereof which has undergone any maintenance, repair, or alteration, is required to hold a mechanic certificate with an aircraft and/or an aircraft engine rating. However, Special Civil Air Regulation SR–332, effective until December 31, 1949, authorizes the issuance of limited mechanic certificates with propeller and aircraft appliance ratings to individuals who supervise the inspection, repair, or overhaul of propellers or appliances performed by manufacturers or certificated repair stations, and exempts such individuals from meeting the certificate requirements of Part 24. Thus, a limited mechanic is relieved from the requirements that he have a specified amount of experience and skill and accomplish successfully prescribed theoretical and skill examinations.

The proposed revision establishes requirements for the issuance of mechanic certificates and ratings for all mechanics, delineates the privileges of such certificates, and establishes basic operating rules for the holders thereof. It is not proposed to require certificated mechanics to submit any periodic activity report or to authorize such individuals to pack parachutes.

The most important change proposed concerns the ratings to be issued. This proposal provides for the issuance of the following ratings: Airframe, powerplant, propeller, radio, instrument (mechanical, electrical and gyroscopic), and accessory (mechanical and electrical). The last 3 ratings (radio, instrument, and accessory) are designed to supplant the limited mechanic certificates currently authorized by Special Civil Air Regulation SR–332. This proposal also establishes appropriate knowledge, experience, and skill requirements for each of the above-mentioned ratings.

With respect to airframe, powerplant, and propeller ratings it is proposed that each applicant will be given by the Administrator an appropriate written and oral knowledge examination. However, with respect to radio, instrument, and accessory ratings, it is proposed to authorize the Administrator to prescribe either a written or oral knowledge examination. In every instance, it is proposed to require an applicant to take a practical examination appropriate to the rating sought. It is intended that these examinations will be designed to permit an applicant to demonstrate that he possesses a well-rounded, basic knowledge of the work which the rating applied for authorizes him to perform. It is believed that all examinations serving to qualify an individual for a mechanic certificate should be conducted by the Administrator to insure that all applicants meet the same general standards.

We believe that current holders of mechanic certificates and limited mechanic certificates will, in most instances, be able to meet the proposed certificate requirements, and we have, therefore, provided that these individuals may exchange such certificates for certificates issued in accordance with this part.

All applications for ratings would be made to the Administrator, and all certificates and ratings would remain in effect until surrendered, suspended, revoked, or otherwise terminated by the Board. No longer would an individual holding a limited mechanic certificate with a propeller or appliance (radio, instrument, and accessory) rating be required to surrender such certificate and rating upon leaving the employ of a manufacturer or repair station, as currently required under Special Civil Air Regulation SR–332 Thus, the holder of a mechanic certificate with any of the proposed ratings could move freely within the industry, using his certificate and ratings as evidence that he possesses a basic knowledge of the work authorized by the rating. It would be necessary for such holder, as in the case of all other airmen, to demonstrate to his prospective employer that he possesses sufficient specialized skill and knowledge to justify employment.

Each of the proposed ratings would carry with it specified privileges and limitations. Generally speaking, holders of such ratings would be authorized to release for service that part of an aircraft on which they have performed maintenance, minor repairs, or minor alterations. However, it will be noted that the holder of a rating other than airframe or powerplant would be authorized to exercise the privilege of his certificate and rating only with respect to the work performed for, and through the use of facilities provided by, a certificated repair station. It is deemed advisable to continue to limit the places at which the propeller, radio, instrument, and accessory mechanic may perform his work in order to insure that such mechanic has available the specialized tools and equipment considered necessary to maintain, repair alter, and inspect such equipment. Thus, the necessary control established in Special Civil Air Regulation SR–332 is maintained. Such a limitation is not considered necessary with respect to mechanics with airframe or powerplant ratings. On the other hand, the proposed operating rules prevent all certificated mechanics from returning aircraft to service after major repairs and alterations have been performed without approval of an authorized representative of the Administrator.

In this connection it should be noted that Special Civil Air Regulation SR–332 terminates December 31, 1949. In view of the fact that this proposed revision of Part 24 cannot, under established notice and public rule-making procedures, be made effective prior to that date, we believe that it is in the public interest to grant an extension of that special regulation for a period of time not to exceed the effective date of this proposed revision and in no event longer than 6 months. Accordingly, notice is hereby given that the Bureau has under consideration such an extension of Special Civil Air Regulation SR–332.

A further proposal specifies the recent experience requirements which must be met by each certificated mechanic before he is considered qualified to exercise the privileges of his certificate and ratings. These are similar to those currently contained in Part 24. Subject to these recent experience requirements, the holder of a certificate and rating could work on any category of aircraft without specific authorization therefor being endorsed on his certificate or rating.

We wish to invite specific attention to the proposal that an applicant for a mechanic certificate be at least 18 years of age. This is also the current requirement. It will be noted that the provisions of Annex 1 (Personnel Licensing Standards) to the Convention on International Civil Aviation provides that an applicant shall be at least 21 years of age. While we recognize that an individual of 21 years of age might possess more mature judgment and may have wider experience and greater knowledge than a younger person, we do not believe that the level of safety to be achieved in the maintenance, repair, and alteration of aircraft will be impaired by certificating individuals of slightly lesser age. Moreover, our past experience in certificating individuals of 18 years of age supports our conclusion that such persons can safely perform the duties of aircraft mechanics. Therefore, if the comments received as a result of this notice support our proposal, or if they recommend an age higher than 18 but less than 21 which is considered to be reasonable by the Bureau, notice is hereby given that the Bureau will recommend to the Board that the Board adopt such lesser age as a certificate requirement and, in accordance with established procedures, will notify the International Civil Aviation Organization that the requirements for the issuance of mechanic certificates in the Civil Air Regulations deviate from the standard established by ICAO in Annex 1 with respect to the age requirement.

We do not propose to issue mechanic certificates on the basis of competency gained while in the armed forces of the United States. Such issuance entails

granting to an individual, who currently holds or did hold an appropriate military rating, an airman certificate upon the successful completion of an examination covering only the basic operating rules of such certificate. We do not believe that the experience gained by the large majority of such individuals is sufficiently broad to warrant the issuance of a mechanic certificate without an examination of his ability. On the other hand, the experience gained while in the armed forces may be credited toward the total experience required for a particular rating.

It is therefore proposed to extend the termination date of Special Civil Air Regulation SR-332 for a period not to exceed the effective date of the proposed revision of Part 24 and in no event longer than 6 months.

The proposed revision of Part 24 is attached hereto.

This amendment and revision is proposed under authority of Title VI of the Civil Aeronautics Act of 1938, as amended.

(Sec. 205 (a), 52 Stat. 984; 49 U. S. C. 425 (a). Interpret or apply secs. 601–610, 52 Stat. 1007–1012; 49 U. S. C. 551–560; act of July 1, 1948; 62 Stat. 1216)

Dated: December 9, 1949, at Washington, D. C.

By the Bureau of Safety Regulation.

[SEAL] JOHN M. CHAMBERLAIN,
Director

PART 24—MECHANIC CERTIFICATES

§ 24.0 *Applicability of part.* This part establishes requirements for the issuance of mechanic certificates and ratings, delineates the privileges of such certificates, and establishes basic operating rules for the holders thereof.

§ 24.1 *Definitions.* (a) As used in this part the words listed below shall be defined as follows:

(1) *Accessory.* An accessory shall mean an appliance other than a radio or an instrument, including radar and devices for the automatic control of aircraft in flight.

(2) *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.

(3) *Airframe.* Airframe shall mean all parts of an aircraft less powerplant, propeller, and appliances.

(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) *Approved.* Approved, when used either alone or as modifying such words as aircraft, airframe, powerplant, propeller, appliances, methods, or techniques, shall mean approved by the Administrator of Civil Aeronautics in accordance with the applicable requirements of the Civil Air Regulations.

(7) *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 any of the duties delegated to the Administrator by the provisions of this part.

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

(9) *Certificated repair station.* A certificated repair station shall mean a repair station holding an air agency certificate with appropriate ratings issued by the Administrator.

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

(11) *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.

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

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

(i) An alteration which results in an appreciable change in its weight, balance, structural strength, powerplant operation, or flight characteristics; or

(ii) An alteration which cannot be executed by means of elementary operations.

(14) *Major repair.* A major repair to an aircraft or any component thereof shall mean a repair the accomplishment of which might affect the basic structure and/or the performance of an aircraft or any component thereof.

(15) *Minor alteration.* A minor alteration of an aircraft or any component thereof shall mean an alteration other than a major alteration, including any alteration which can be executed by means of elementary operations.

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

(17) *Powerplant.* Powerplant shall mean an aircraft engine and its component parts, less propeller.

(18) *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 parallel to the longitudinal axis of the aircraft.

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

(20) *Radio.* Radio shall mean an appliance, other than radar, for the transmission and reception of signals by means of electric waves without a connecting wire.

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

CERTIFICATE RULES

§ 24.5 *Application for certificate.* Application for certificates and ratings shall be made on a form and in a manner prescribed by the Administrator.

§ 24.6 *Issuance.* (a) Mechanic certificates and ratings shall be issued by the Administrator to applicants who meet the requirements of this part. No person shall perform the duties of an aircraft mechanic without or in violation of the terms of a mechanic certificate with appropriate ratings.

(b) Pending a review of the applicants' application and supporting documents by the Administrator and the issuance of mechanic certificates and ratings, an authorized representative of the Administrator may, subject to such terms and conditions as the Administrator may specify, issue temporary mechanic certificates with appropriate ratings to applicants for mechanic certificates and ratings who have met the requirements of this part.

§ 24.7 *Duration.* (a) A mechanic certificate and ratings shall remain in effect until surrendered, suspended, revoked, or otherwise terminated by order of the Board, after which they shall be returned to the Administrator, except that a certificate issued to an individual other than a United States citizen shall remain in effect for only one year.

(b) A temporary certificate shall remain in effect for 90 days.

§ 24.8 *Exchange of certificates.* All mechanic certificates and limited mechanic certificates and ratings issued prior to the effective date of this part shall expire on January 1, 1951. Each holder of such certificate shall, on or before January 1, 1951, surrender such certificate to the Administrator who shall issue a new certificate with appropriate ratings in accordance with the provisions of this part.

§ 24.9 *Display.* The mechanic certificate with appropriate ratings shall be in the personal possession of the mechanic at all times while exercising the privileges of such certificate, and shall be available for inspection by any authorized representative of the Administrator or the Board, or by any State or local law enforcement officer.

§ 24.10 *Change of address.* Within 30 days after any change in the permanent mailing address of a holder of a mechanic certificate, the holder shall notify the Administrator in writing of such change. Such notice shall be mailed to the Administrator of Civil

Aeronautics, Attention Airman Records Branch, Washington 25, D. C.

GENERAL CERTIFICATE REQUIREMENTS

§ 24.15 *Citizenship.* An applicant shall be a citizen of the United States or of a foreign government which grants or has undertaken to grant reciprocal mechanic privileges to citizens of the United States on equal terms and conditions with citizens of such foreign government.

§ 24.16 *Age.* An applicant shall be at least 18 years of age.

§ 24.17 *Education.* An applicant shall be able to read, write, speak, and understand the English language: *Provided,* That if an applicant is employed by a United States air carrier outside of the United States, such applicant shall not be required to meet this requirement, and in that event his certificate shall be appropriately endorsed by the Administrator.

§ 24.18 *Examinations and tests.* Examinations and tests shall be conducted by an authorized representative of the Administrator at such times and places as the Administrator may designate.

§ 24.19 *Reexamination after failure.* An applicant for a mechanic certificate who has failed any prescribed examination or test may not apply for reexamination more than twice within any calendar month.

§ 24.20 *Application for additional ratings.* An applicant for a rating subsequent to the original issuance of a mechanic certificate with appropriate ratings shall meet the knowledge, experience, and skill requirements for the rating applied for.

§ 24.21 *Substantiation of experience.* An applicant shall submit evidence satisfactory to the Administrator to substantiate the experience qualifications for the mechanic certificate or rating applied for.

§ 24.22 *Ratings.* The following mechanic ratings shall be issued:

(a) Airframe.
(b) Powerplant.
(c) Propeller.
(d) Radio.
(e) Instrument.
(1) Mechanical.
(2) Electrical.
(3) Gyroscopic.
(f) Accessory.
(1) Mechanical.
(2) Electrical.

MECHANICAL KNOWLEDGE, EXPERIENCE, AND SKILL REQUIREMENTS

§ 24.31 *Mechanical knowledge.* (a) An applicant for a mechanic certificate with airframe, powerplant, or propeller ratings shall successfully accomplish a written and oral examination prescribed by the Administrator covering the construction, maintenance, repair, and inspection of the part of an aircraft appropriate to the rating sought, the provisions of this part, the applicable provisions of Part 43, and the provisions of Civil Aeronautics Manual 18.

(b) An applicant for a mechanic certificate with radio, instrument, or accessory ratings shall successfully accomplish either a written or oral examination as prescribed by the Administrator covering the subjects specified in paragraph (a) of this section

§ 24.35 *Mechanical experience.* An applicant for a mechanic certificate shall have had at least the following practical experience with the procedures, practices, materials, tools, machine tools, and equipment generally used in the inspection, maintenance, repair, and alteration of the airframes, powerplants, propellers, radios, instruments, and accessories appropriate to the rating sought. The experience required for each rating shall be acquired in the exclusive performance of the duties appropriate to such rating: *Provided,* That an applicant for an airframe and a powerplant rating who has for at least 30 months performed concurrently the duties appropriate to both such ratings may be issued such ratings.

(a) Airframe—18 months.
(b) Powerplant—18 months.
(c) Propeller—36 months.
(d) Radio—18 months.
(e) Instrument—36 months.
(f) Accessory—18 months.

§ 24.36 *Graduates of certificated mechanic schools.* (a) A graduate of a mechanic school holding an air agency certificate with appropriate ratings issued by the Administrator shall be deemed to have met the experience requirements of this part for a rating other than propeller or instrument if, within 60 days after graduation, he presents an appropriate certificate of graduation and successfully accomplishes the examination prescribed by the Administrator for the rating sought.

(b) An individual who has successfully accomplished an approved propeller or instrument course of instruction may be credited with not more than 18 months toward the total experience required for the appropriate rating, if he presents an appropriate certificate of graduation and successfully accomplishes the examination prescribed by the Administrator for the rating sought.

§ 24.39 *Mechanical skill.* An applicant for a mechanic certificate with a particular rating shall, in a manner prescribed by the Administrator, demonstrate his competency to maintain, repair, inspect, and alter any part of an aircraft for which a rating is sought.

PRIVILEGES AND LIMITATIONS OF A MECHANIC CERTIFICATE

§ 24.45 *Mechanic privileges; general.* A certificated mechanic may perform or supervise the maintenance, repair, inspection, and alteration of any part of an aircraft, or component thereof, for which he is rated, and may perform additional work in accordance with the privileges and limitations stated in §§ 24.46 through 24.48: *Provided,* That he shall not supervise the maintenance, repair, inspection, or alteration of or return to service any part of an aircraft, or component thereof, for which he is rated unless he has previously performed the particular operation involved.

§ 24.46 *Airframe rating.* A certificated mechanic with an airframe rating may release the airframe, or any component thereof, for service after maintenance, minor repair, or minor alteration has been accomplished thereon.

§ 24.47 *Powerplant rating.* A certificated mechanic with a powerplant rating may make minor repairs or minor alterations to a propeller, and may release the powerplant or propeller, or any component thereof, for service after maintenance, minor repair, or minor alteration has been accomplished thereon.

§ 24.48 *Rating other than airframe or powerplant.* A certificated mechanic with a rating other than airframe or powerplant may install, reinstall, and return to service propellers, radios, instruments, and accessories for which he is rated: *Provided,* That such holder may exercise the privileges of his certificate only with respect to the work performed for, and through the use of facilities provided by, a certificated repair station.

OPERATING RULES

§ 24.60 *General.* A certificated mechanic shall not exercise the privileges of his certificate and ratings unless he is familiar with the current manufacturers' instructions and the airworthiness manuals pertinent to the particular operation to be performed.

§ 24.61 *Recent experience requirements.* A certificated mechanic shall not exercise the privileges of his certificate and ratings unless he:

(a) Has served as a mechanic under the terms of his certificate and ratings for at least six months during the preceding 24-month period, or

(b) Has satisfied an authorized representative of the Administrator that he is competent to perform the duties of such certificate and ratings.

[F. R. Doc. 49-10059; Filed, Dec. 15, 1949; 8:51 a. m.]

[14 CFR, Part 52]

Repair Station Certificates

Notice of Proposed Rule Making

Pursuant to authority delegated by the Civil Aeronautics Board to the Bureau of Safety Regulation, notice is hereby given that the Bureau will propose to the Board a revision of Part 52 as hereinafter set forth.

Interested persons may participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. Communications should be submitted to the Civil Aeronautics Board, attention Bureau of Safety Regulation, Washington 25, D. C. All communications received not later than February 1, 1950, will be considered by the Board before taking further action on the proposed rule.

Currently effective Part 52 establishes requirements for the issuance of repair station certificates and ratings and basic operating rules for the holders thereof.

The most important innovations in the proposed revision are provisions for the issuance of repair station ratings for radio, instruments, and accessories, and for the issuance of ratings limited to the performance of specialized services. Under the terms of the proposed revision the following general ratings may be issued to repair stations: Airframe, powerplant, propeller, radio, instrument, and accessory. In addition to these general ratings, a limited rating may be issued authorizing an applicant to work on some particular type of airframe, powerplant, etc., or to perform some specialized maintenance, repair, or overhaul function. Thus, an applicant may, if he so desires, apply only for the rating for which he is able to furnish the required facilities, equipment, materials, and personnel. An applicant for a powerplant rating would not, for example, have to be equipped to repair all powerplants, but may choose the horsepower limits within which he desires to work.

All applicants would be required to furnish housing, facilities, equipment, materials, and personnel adequate to perform competently the work authorized by the particular rating sought. The exact type and amount of such housing, facilities, equipment, materials, and personnel, will, in all probability, vary in each instance. This proposal sets forth the main functions to be performed by a repair station holding a particular rating. It is believed that these functions are stated in such terms as to permit an applicant and a CAA examining agent to determine jointly the facilities and equipment required to be furnished for a particular rating without resort, as under current regulations, to a detailed mandatory list of facilities and equipment. This provision also is designed to provide applicants with an incentive to provide more efficient methods of accomplishing the required functions.

The proposed revision of Part 52 is attached hereto.

This revised part is proposed under the authority of Title VI of the Civil Aeronautics Act of 1938, as amended. (Sec. 205 (a), 52 Stat. 984; 49 U. S. C. 425 (a). Interpret or apply secs. 601-610, 52 Stat. 1007-1012; 49 U. S. C. 551-560; Act of July 1, 1948; 62 Stat. 1216)

Dated: December 9, 1949, at Washington, D. C.

By the Bureau of Safety Regulation.

[SEAL] JOHN M. CHAMBERLAIN,
Director.

Part 52—Repair Station Certificates

§ 52.0 *Applicability of part.* This part establishes requirements for the issuance of repair station certificates and ratings and operating rules for the holders thereof.

§ 52.1 *Definitions.* (a) As used in this part the words listed below shall be defined as follows:

(1) *Accessory.* An accessory shall mean an appliance other than a radio or an instrument, including radar and devices for the automatic control of aircraft in flight.

(2) *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.

(3) *Airframe.* An airframe shall mean all parts of an aircraft, less powerplant, propeller, and appliances.

(4) *All-metal construction.* All-metal construction, when that phrase is used to describe the composition of an airframe, shall mean that the structure of the airframe is made of metal only, irrespective of the kind of covering utilized.

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

(7) *Certificated air carrier.* A certificated air carrier shall mean an air carrier holding an air carrier operating certificate issued by the Administrator.

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

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

(10) *Component.* A component shall mean any constituent part of an aircraft.

(11) *Composite construction.* Composite construction, when that phrase is used to describe the composition of an airframe, shall mean that the structure of the airframe is made of at least two types of substances such as metal and wood.

(12) *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.

(13) *Maintenance.* Maintenance shall mean the upkeep and preservation of airframes, powerplants, propellers, and appliances, including the replacement of parts.

(14) *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.

(15) *Powerplant.* Powerplant shall mean an aircraft engine and its component parts, less propeller.

(16) *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 parallel to the longitudinal axis of the aircraft.

(17) *Radio.* Radio shall mean an appliance, other than radar, for the transmission and reception of signals by means of electric waves without a connecting wire.

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

(19) *Type.* Type of airframe, powerplant, propeller, or appliance shall mean an airframe, powerplant, propeller, or appliance of the same basic design including all modifications thereto except those modifications which result in a change in the handling, flight, or operating characteristics.

General Certificate Rules

§ 52.5 *Application for certificate.* Application for a repair station certificate with appropriate ratings, and any modification or amendment thereof, shall be made on a form and in a manner prescribed by the Administrator.

§ 52.6 *Issuance.* A repair station certificate with appropriate ratings, prescribing such operating specifications and limitations as may be reasonably required in the interest of safety will be issued to an applicant whom the Administrator finds is properly and adequately equipped and able to maintain, repair, or alter airframes, powerplants, propellers, or appliances in accordance with the applicable requirements hereinafter specified. No person shall operate as a repair station without, or in violation of, the terms of a repair station certificate.

§ 52.7 *Duration.* (a) A repair station certificate issued to a person who is a citizen of the United States 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.

(b) A repair station certificate issued to a person who is a citizen of a foreign country shall expire 12 months after the date of issuance, unless sooner surrendered, suspended, revoked, or otherwise terminated by order of the Board, after which it shall be returned to the Administrator.

§ 52.8 *Exchange of certificates.* All repair station certificates and ratings issued prior to the effective date of this part shall expire on January 1, 1951. Each holder thereof shall, on or before January 1, 1951, surrender such certificate and ratings to the Administrator who shall issue a new certificate with appropriate ratings in accordance with the provisions of this part.

§ 52.9 *Display.* The repair station certificate shall be on display in the repair station for which the certificate was issued and available for inspection by any authorized representative of the Administrator or the Board.

§ 52.10 *Change of location.* No change in the location of a certificated repair station shall be made without the prior written approval of the Administrator.[1]

§ 52.11 *Advertising.* Any advertising conducted by a certificated repair station which indicates that it is a certificated repair station shall clearly indicate the work for which it is rated under its certificate.

§ 52.12 *Inspection.* An authorized representative of the Administrator or the Board shall be permitted at any time to make inspections or examinations to determine a repair station's compliance with the provisions of the Civil Air Regulations.

§ 52.13 *Nontransferability of certificate.* A repair station certificate is not transferable.

GENERAL DOMESTIC CERTIFICATE REQUIREMENTS

§ 52.21 *Requirements for issuance of certificate.* An applicant for a certificate for a repair station to be located within the United States shall be a citizen thereof. No such certificate shall be issued until the requirements of §§ 52.22 through 52.24 and §§ 52.30 through 52.36, as appropriate, are met.

§ 52.22 *Housing and facilities.* An applicant shall provide:

(a) Sufficient housing to accommodate the necessary equipment and material, and suitable working space for the performance of the work for which the repair station rating is sought;

(b) Suitable facilities for the proper storage, segregation, and protection of materials, parts, and supplies; and

(c) Suitable facilities for the proper protection of parts and subassemblies during disassembly, cleaning, repair, alteration, inspection, and assembly.

[1] Requests for approval of change of location should be mailed to the Regional Administrator of the Civil Aeronautics Administration for the area in which the agency is located

§ 52.23 *Personnel.* Each applicant shall have an adequate number of personnel competent to perform and supervise the work for which the repair station is rated, at least one of whom shall be a certificated mechanic.

§ 52.24 *Inspection system.* An applicant for a repair station certificate shall have an inspection system adequate to insure quality control.

§ 52.25 *Ratings.* The following repair station ratings shall be issued:

(a) *Airframe.*

(1) Composite construction up to and including 12,500 lbs.
(2) Composite construction above 12,500 lbs.
(3) All-metal construction up to and including 12,500 lbs.
(4) All-metal construction above 12,500 lbs.

(b) *Powerplant.*

(1) Engines up to and including 400 h. p.
(2) Engines above 400 h. p.
(3) Jet engines.

(c) *Propeller.*

(1) Fixed pitch type.
(2) All other types, by make and model.

(d) *Radio.*

(e) *Instrument.*

(1) Mechanical.
(2) Electrical.
(3) Gyroscopic.

(f) *Accessory.*

(1) Mechanical—by type.
(2) Electrical—by type.

§ 52.26 *Limited ratings.* The ratings specified in § 52.25 may be issued with appropriate limitations to a repair station which engages solely in the maintenance, repair, or alteration of a particular type of airframe, powerplant, radio, or instrument, or the components thereof, or engages in a specialized service with respect to the maintenance, repair, or alteration of an aircraft, or the components thereof.

EQUIPMENT AND MATERIALS

§ 52.30 *Equipment and materials; general.* An applicant shall have such equipment and materials as are necessary for the competent and efficient performance of the functions appropriate to the rating or ratings sought.

§ 52.31 *Airframe rating.* An applicant for an appropriate airframe rating shall be equipped to maintain, repair, alter, and inspect the following:

(a) *Composite construction.*

(1) Steel structural components.
(2) Wood structure.
(3) Fabric covering.
(4) Control systems.
(5) Landing gear systems.
(6) Electric wiring systems.

(b) *All-metal construction.*

(1) Steel structural components.
(2) Alloy skin and structural components.
(3) Fabric covering, when appropriate.
(4) Control systems.
(5) Landing gear systems.
(6) Electric wiring systems.

§ 52.32 *Powerplant rating.* An applicant for a powerplant rating shall be equipped to:

(a) Maintain, repair, and alter powerplants, including replacement of parts.

(b) Inspect all parts, using appropriate inspection aids.

(c) Accomplish routine machine work.

(d) Perform assembly operations, and

(e) Test overhauled powerplants in compliance with manufacturers' recommendations or shall have made suitable arrangements for the performance of this function in lieu thereof.

§ 52.33 *Propeller rating.* An applicant for a propeller rating shall be equipped to:

(a) Maintain, repair, and alter propellers, including replacement of parts.

(b) Inspect components, using appropriate inspection aids.

(c) Repair or replace components.

(d) Balance propellers, and

(e) Test propeller pitch-changing mechanisms.

§ 52.34 *Radio rating.* An applicant for a radio rating shall be equipped to:

(a) Diagnose radio malfunctions.

(b) Maintain, repair, and alter radios, including the replacement of parts.

(c) Inspect and test radios, and

(d) Make transmitter frequency checks.

§ 52.35 *Instrument rating.* An applicant for an instrument rating shall be equipped to:

(a) Diagnose instrument malfunctions.

(b) Maintain, repair, and alter instruments, including the replacement of parts, and

(c) Inspect, test, and calibrate instruments.

§ 52.36 *Accessory rating.* An applicant for an accessory rating shall be equipped to:

(a) Diagnose accessory malfunctions.

(b) Maintain, repair, and alter accessories, including the replacement of parts, and

(c) Inspect and test, and, where necessary, calibrate accessories.

DOMESTIC REPAIR STATION OPERATING RULES

§ 52.40 *Domestic operating rules; general.* All certificated repair stations located in the United States shall comply with the following operating rules.

§ 52.41 *Privileges of certificate.* A certificated repair station shall be authorized:

(a) To perform maintenance, repair, and alteration work on any airframe, powerplant, propeller, or appliance for which it is rated, and

(b) To return to service such airframes, powerplants, propellers, or appliances after the required maintenance, repair, or alteration work has been performed.

§ 52.42 *Limitations of certificate.* A certificated repair station shall not perform any maintenance, repair, or alteration on any airframe, powerplant, propeller, or appliance for which such station is not rated, or any such work for which rated when such maintenance, repair, or alteration would require special technical data, equipment, or facilities not available to such station.

§ 52.43 *Maintenance of facilities, equipment, and material.* The holder of a repair station certificate shall maintain all facilities, equipment, and materials in conformity with the standards required for the original issuance of the certificate.

§ 52.44 *Standard of performance.* All maintenance, repair, and alteration work shall be performed in accordance with the standards prescribed in Part 18 of the Civil Air Regulations.

§ 52.45 *Inspection of work performed.* Each airframe, powerplant, propeller, and appliance which has undergone any maintenance, repair, or alteration shall, prior to being returned to service, be inspected by a certificated mechanic, or a qualified inspector under the supervision of such mechanic. The repair station shall certify on the maintenance, repair, and alteration record for such airframe, powerplant, propeller, or appliance that it is airworthy.

§ 52.46 *Performance records and reports.* A certificated repair station shall maintain adequate records of all work performed. Such records shall indicate the name of the individual by whom the work was performed, the name of the individual by whom it was inspected, and the name of the certificated mechanic directly in charge thereof, if other than the individual performing the work or inspecting it.

§ 52.47 *Report of defects or unairworthy conditions.* A certificated repair station shall submit to the Administrator a monthly report of all serious defects in, or other recurring unairworthy conditions of, an airframe, powerplant, propeller, or any component thereof, on a form and in a manner prescribed by the Administrator: *Provided,* That if such repair station is operated by a certificated air carrier which maintains base repair records, such records may be furnished in lieu of the report required by this section.

GENERAL FOREIGN CERTIFICATE REQUIREMENTS

§ 52.61 *Requirements for issuance of foreign certificate.* A certificate with appropriate ratings for a repair station located outside of the United States may be issued to a citizen of the United States, or to a citizen of a foreign government only where the Administrator determines that such repair station is necessary to provide for the maintenance, repair, or alteration of United States registered aircraft outside of the United States. No person shall be issued such repair station certificate until the requirements for the issuance of a domestic repair station certificate, except § 52.23 are met.

§ 52.62 *Scope of work authorized.* A foreign repair station certificate shall be limited to the performance of work on United States registered aircraft which are used in operations conducted in whole or in part outside the United States and shall contain such operating specifications and limitations as the Administrator may prescribe to insure compliance with applicable aircraft airworthiness requirements of the Civil Air Regulations.

§ 52.63 *Personnel.* An applicant shall have adequate personnel competent to perform, supervise, and inspect the work for which the repair station is rated.

FOREIGN REPAIR STATION OPERATING RULES

§ 52.70 *General.* A certificated foreign repair station shall comply with the operating rules prescribed for a domestic repair station, except §§ 52.46 and 52.47.

§ 52.71 *Required records and reports.* An applicant shall maintain such records and make such reports with respect to United States registered aircraft as the Administrator finds necessary for the satisfactory administration of the privileges granted by this part.

[F. R. Doc. 49-10060; Filed, Dec. 15, 1949; 8:52 a. m.]

[14 CFR, Part 53]

MECHANIC SCHOOL CERTIFICATES

NOTICE OF PROPOSED RULE MAKING

Pursuant to authority delegated by the Civil Aeronautics Board to the Bureau of Safety Regulation, notice is hereby given that the Bureau will propose to the Board a revision of Part 53 as hereinafter set forth.

Interested persons may participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. Communications should be submitted to the Civil Aeronautics Board, attention Bureau of Safety Regulation, Washington 25, D. C. All communications received not later than February 1, 1950, will be considered by the Board before taking further action on the proposed rule.

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 proposal, in addition to establishing requirements for the issuance of mechanic school certificates and ratings and basic operating rules for the holders thereof, authorizes the issuance of new ratings and establishes curricula for such ratings.

It is proposed to issue the following mechanic school ratings: Airframe, powerplant, propeller, radio, instrument, and accessory. It will be noted that these ratings parallel those proposed to be issued to mechanics and to repair stations, thus providing continuity throughout these related fields. (See proposed revisions of Parts 24 and 52 published concurrently herewith.) For each of these ratings it is proposed to establish a curriculum, which admittedly must, in certain instances, be adjusted to fit the requirements of the particular subject taught. This is especially true with regard to the radio, instrument, and accessory curricula.

Moreover, the proposals with respect to the required 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 in light of the requirements of the particular rating sought and the maximum number of students expected to be in attendance at any particular time. Justification as to compliance with such general standards is the primary responsibility of the applicant.

The proposed revision of Part 53 is attached hereto.

This revision is proposed under the authority of Title VI of the Civil Aeronautics Act of 1938, as amended.

(Sec. 205 (a), 52 Stat. 984; 49 U. S. C. 425 (a). Interpret or apply secs. 601-610, 52 Stat. 1007-1012; 49 U. S. C. 551-560; act of July 1, 1948; 62 Stat. 1216)

Dated: December 9, 1949, at Washington, D. C.

By the Bureau of Safety Regulation.

[SEAL] JOHN M. CHAMBERLAIN,
Director.

PART 53—MECHANIC SCHOOL CERTIFICATES

§ 53.0 *Applicability of 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 the words listed below shall be defined as follows:

(1) *Accessory.* An accessory shall mean an appliance other than a radio or an instrument, including radar and devices for the automatic control of aircraft in flight.

(2) *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, or appliances.

(3) *Airframe.* Airframe shall mean all parts of an aircraft less powerplant, propeller, and appliances.

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

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

(8) *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.

(9) *Maintenance.* Maintenance shall mean the upkeep and preservation of airframes, powerplants, propellers, and appliances, including the replacement of parts.

(10) *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.

(11) *Powerplant.* Powerplant shall mean an aircraft engine and its component parts, less propeller.

(12) *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 parallel to the longitudinal axis of the aircraft.

(13) *Radio.* Radio shall mean an appliance, other than radar, for the transmission and reception of signals by means of electric waves without a connecting wire.

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

(15) *Transport category aircraft.* Transport category aircraft shall mean aircraft which have been certificated in accordance with the requirements of Part 4b of the Civil Air Regulations, or under the transport category performance requirements of Part 4a thereof.

CERTIFICATE 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 operating specifications and limitations as may be reasonably required in the interest of safety shall be issued to an applicant whom 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 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.* All mechanic school certificates and ratings issued prior to the effective date of this part shall expire on June 1, 1950. Each person holding such a certificate shall, on or before June 1, 1950, surrender such certificate to the Administrator who shall issue a new certificate in accordance with the provisions of this part.

§ 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.[1]

§ 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 the Civil Air Regulations.

[1] Requests for approval of the change in location shall be mailed to the Administrator of Civil Aeronautics, attention Airman Division, Washington 25, D. C.

§ 53.12 *Nontransferability of certificate.* Mechanic school certificates are not transferable.

§ 53.13 *Advertising.* Any advertising which indicates that the school is a certificated mechanic school shall clearly differentiate between those courses which have been and those which have not been approved by the Administrator.

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

(a) Airframe.
(b) Powerplant.
(c) Propeller.
(d) Radio.
(e) Instrument.
(1) Mechanical.
(2) Electrical.
(3) Gyroscopic.
(f) Accessory.
(1) Mechanical.
(2) Electrical.

GENERAL CERTIFICATE REQUIREMENTS

§ 53.30 *Certificate rules; general.* No applicant for a mechanic school certificate or a rating shall be issued such certificate or rating until the following requirements are met.

§ 53.31 *Citizenship.* An applicant shall be a citizen of the United States or of a foreign government which grants or has undertaken to grant reciprocal mechanic school certificate privileges to citizens of the United States on equal terms and conditions with citizens of such foreign government.

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

§ 53.33 *Facilities, equipment, and materials; general.* (a) Each applicant shall have at least the facilities, equipment, and materials specified in §§ 53.35 through 53.37 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.

§ 53.34 *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]

§ 53.35 *Required space facilities.* Each applicant shall have such of the following facilities as are appropriate to the rating sought, which shall be adequate 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 and 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.

§ 53.36 *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, appliances, and components thereof, on which instruction is to be given and 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 transport category aircraft), control surfaces, landing gears, radios, instruments, propellers (including propellers of fixed type, wood and metal, and adjustable and controllable metal), and aircraft 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.

§ 53.37 *Required materials, tools, and shop equipment.* Each applicant shall have such of the following special tools and shop equipment, an adequate supply of raw materials, and other miscellaneous tools and equipment, 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 chargers and testers.

§ 53.38 *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 § 53.39 and shall include instruction in the subjects specified for the particular curriculum in §§ 53.40 through 53.45. Each curriculum shall be approved by the Administrator and no change therein shall be made without his prior written approval.

§ 53.39 *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.
(d) Propeller—600 hours.
(e) Radio—600 hours.
(f) Instrument—1,000 hours.
(g) Accessory—the number of hours to be proposed by the applicant and approved by the Administrator for each curriculum offered.

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

(a) Parts 1, 4a, 4b, 15, 18, 24, and 52 of the Civil Air Regulations, 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) Welded 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 and aluminum alloy, structure, stock and fittings.

(i) Controls and control surfaces.

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

[2] Requests for such modification or change should be mailed to the Regional Administrator of Civil Aeronautics for the appropriate region.

(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, and
(u) Mechanical drawing.

§ 53.41 *Powerplant curriculum.* The powerplant curriculum shall include the following subjects:
(a) Parts 1, 4a, 4b, 13, 14, 18, 24, and 52 of the Civil Air Regulations, as amended, appropriate to the curriculum.
(b) Instruments, equipment, their use and care.
(c) Shop practice and procedures, use of forms.
(d) Fundamental powerplant requirements.
(e) Mechanical drawing.
(f) Engine 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 magnuflux and fluorescent penetrant.
(p) Block testing.
(q) Propellers, installation and maintenance.
(r) Powerplant installation.
(s) Powerplant maintenance.
(t) Turbo-jet, turbo prop and compound engines.
(u) Theory and principle of operation, and
(v) Aircraft powerplant development.

§ 53.42 *Propeller curriculum.* The propeller curriculum shall include the following subjects:
(a) Parts 1, 4a, 4b, 14, 18, 24, and 52 of the Civil Air Regulations, as amended, appropriate to the curriculum.
(b) Tools, instruments, equipment, their use and care.
(c) Shop practice and procedures, use of forms.
(d) Types of propellers.
(e) Maintenance and servicing.
(f) Modification.
(g) Etching, use of magnuflux and fluorescent penetrant.
(h) Repair.
(i) Installation.

§ 53.43 *Radio curriculum.* The radio curriculum shall include the following subjects:
(a) Parts 1, 4a, 4b, 16, 17, 24, and 52 of the Civil Air Regulations, as amended, appropriate to the curriculum.
(b) Tools, instruments, equipment, their use and care.
(c) Shop practice and procedures, use of forms.
(d) Types of radios and their use.
(e) Maintenance and servicing of radios.
(f) Trouble shooting.
(g) Modification.
(h) Repair.
(i) Installation.

§ 53.44 *Instrument curriculum.* An instrument curriculum shall include the following subjects appropriate to the instrument taught:
(a) Parts 1, 4a, 4b, 15, 18, 24, and 52 of the Civil Air Regulations, as amended, appropriate to the curriculum.
(b) Types of instruments and their uses.
(c) Maintenance and servicing.
(d) Inspection and testing equipment, use and care.
(e) Calibration.
(f) Marking for limits of operation.
(g) Repair.
(h) Installation.
(i) Tools, use and care.
(j) Shop practice and procedures, use of forms.

§ 53.45 *Accessory curriculum.* An accessory curriculum shall include the following subjects appropriate to the accessory taught:
(a) Parts 1, 4a, 4b, 15, 18, 24, and 52 of the Civil Air Regulations, as amended, appropriate to the curriculum.
(b) Types of accessories and their use.
(c) Materials used in the construction, maintenance, and repair of such accessories.
(d) Maintenance and servicing.
(e) Repair.
(f) Inspection and testing equipment, use and care.
(g) Installation.
(h) Use and care of tools and equipment used in maintenance, repair, and alteration.
(i) Shop practice and procedures, use of forms.

§ 53.46 *Instructors.* An applicant shall have an adequate 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.

GENERAL OPERATING RULES

§ 53.60 *Operating rules; general.* All holders of mechanic school certificates with appropriate ratings shall, in the conduct of the school, comply with the following operating rules.

§ 53.61 *Quality of instruction.* The quality of instruction shall be such that at least 80% 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.

§ 53.62 *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.

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

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

§ 53.65 *Graduation certificate.* Each certificated mechanic school shall furnish each graduate a graduation certificate properly authenticated by an official of such school.

§ 53.66 *Required student records.* Each certificated mechanic school shall maintain a current record of each student enrolled. Such record shall show the student's attendance, courses in which enrolled, examinations, and grades. Such record shall be retained by the school for at least 2 years from the date of termination of the student's enrollment. During such period, the record shall be available for inspection by an authorized representative of the Administrator or the Board.

§ 53.67 *Maintenanee 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.

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