Repair Station Certificates

June 1952

U.S. DEPARTMENT OF COMMERCE

Charles Sawyer, Secretary

CIVIL AERONAUTICS ADMINISTRATION

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Civil Aeronautics Manual 52

For sale by the Superintendent of Documents, U. S. Government Printing Office
Washington 25, D. C. — Price $ 1.00

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INTRODUCTION

Civil Aeronautics Manuals are published by the Civil Aeronautics Administration to implement and explain the Civil Air Regulations. This manual contains rules, policies and interpretations of the Administrator of Civil Aeronautics which pertain to Part 52 of the regulations of the Civil Aeronautics Board, adopted March 31, 1952, to become effective June 15, 1952.

When Part 52 was published in the Federal Register as an adopted Regulation, the Civil Aeronautics Board prefaced it with a preamble which explained the overall intent and objective of the regulation. The preamble has been quoted below as a fitting introduction to this manual.

> "Currently effective Part 52 establishes requirements for the issuance of repair station certificates and ratings and basic operating rules for the holders thereof. It is the intent of this revision to improve the standards of repair stations. To accomplish this objective additional repair station ratings are hereby established to take into account the trend toward specialization, so that the stations will be better able to maintain present-day aircraft. The Board believes that repair station ratings issued in accordance with the provisions of this part will reflect more accurately the scope of authority and capabilities of the applicant. It is also the intent in this revision to place a greater degree of responsibility for the operation and performance of repair stations on management as a consequence of the additional privileges granted the certificate holder. For these reasons the Board has provided for a re-examination of all repair stations within one year from the effective date of this part. By that time all repair stations must meet prescribed standards of inspection, quality control, housing, and performance.
>
> "Under the terms of this part the following general ratings may be issued to repair stations: Airframe, powerplant, propeller, radio, instrument, and accessory. Instead of 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 make or model with which he desires to work.

"All applicants are 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 part sets forth the main functions to be performed by a repair station holding a particular rating. It is also designed to provide applicants with an incentive to provide more efficient methods of accomplishing the required functions.

"Provision is made for a repair station with an airframe rating to conduct annual inspections and to issue ferry permits. These additional privileges are granted in the belief that after reinspection repair stations with airframe ratings will be qualified to assume this additional responsibility.

"It should be noted that the provisions for designation of a certificated repairman have been provided in Subpart B of Part 24. This was done both to have the airman certification rules in the proper part and to provide for a recommendation of repairmen either by air carriers who have an approved maintenance program or by repair stations. (See the revision of Part 24 promulgated concurrently herewith.)

"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 52 of the Civil Air Regulations (14 CFR, Part 52, as amended) effective June 15, 1952, to read as follows: . . . . . ."

This manual will be subject to revision from time to time as equally acceptable methods of compliance or need for additional explanation are brought to the attention of the Administrator of Civil Aeronautics. In case of translation, the English text of this manual shall be authoritative.

Repair Station Certificates

APPLICABILITY AND DEFINITIONS

§ 52.0 *Applicability of this 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 terms are defined as follows:

(1) *Accessory.* An accessory shall mean an appliance other than an instrument, electronic communication or navigational equipment, or device 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) *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.

(4) *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.

(5) *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.

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

(7) *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.

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

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

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

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

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

(13) *Composite construction.* Composite construction, when that term 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.

(14) *Electrical.* The term electrical, as applied to appliances, instruments, and accessories, shall mean an appliance, instrument, or accessory whose operation depends upon the flow of an electric current, other than one whose operation depends upon the use of an electron tube or similar device.

(15) *Electronic.* The term electronic, as applied to appliances, instruments, and accessories, shall mean an appliance, instrument, or accessory whose operation depends upon the use of an electron tube or similar device.

(16) *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.

(17) *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.

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

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

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

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

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

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

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

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

(22) *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.

(23) *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).

(24) *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.

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

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

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

GENERAL CERTIFICATION 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.

§ 52.5-1 *Procedure for applying for a repair station certificate (CAA rules which apply to § 52.5)*—(a) *General.* When the applicant has satisfied himself that he is thoroughly familiar with the contents of this part, he shall make application for a repair station certificate on Form ACA-394. This form may be obtained from his local Aviation Safety District Office or the Regional Administrator of the Civil Aeronautics Administration's region having jurisdiction over the civil aviation activities in his area. The addresses of all regional offices of the Civil Aeronautics Administration will be found in the Appendix.

NOTE: Each repair station desiring certification contact the CAA Aviation Safety Agent or Advisor who will inspect his facility for certification. This agent or advisor is located in the Aviation Safety District Office or International Field Office having jurisdiction over the area in which the proposed repair station is to be located.

(b) *Application file.* (1) A complete application file shall consist of the following documents, in duplicate:

(i) An executed application for a Certificated Repair Station, Form ACA-394;

(ii) Roster of supervisory and inspection personnel (§ 52.24-1);

(iii) Copy of the repair station's inspection manual (§ 52.25-1);

(iv) List of maintenance functions contracted to outside agencies as provided for under §§ 52.31-1 through 52.37-1.

(2) When the application is for a propeller rating (Class 2) or accessory rating (Classes 1, 2 and 3) the applicant should attach to the application Form ACA-394 a list indicating by type and/or make the propeller or accessory for which he desires approval. For example: Koppers, automatic variable.

(c) *Modifications or amendments to certificate.* The following are considered to be modifications or amendments to the certificate:

(1) Change of location;

(2) Changes in supervisory and inspection personnel;

(3) Changes in authorized signatures;

(4) Concellations and issuance of repairman certificates;

(5) Request for changing a Designated Maintenance Representative (applies to domestic repair stations only);

(6) Request for revisions or amendments to ratings.

Requests for modifications and amendments detailed in this paragraph shall be made by the execution of Form ACA-394 (Parts I and/or II) by a responsible official of the repair station.

(d) *Special requirements for foreign repair station applicants.* Prior to requesting an application for a repair station certificate, the applicant shall notify, in writing, the Chief Advisor of the International Field Office of his intent to apply for a foreign repair station certificate. The applicant should include in this notification of intent a statement outlining the reasons for desiring a U. S. repair station at the applicant's place of business. After submission of the notification of intent the applicant should hold informal discussions with the CAA Advisor, who will actually handle the certificate of the foreign repair station, and who is hereinafter referred to as

the inspecting advisor. During this discussion the inspecting advisor will clarify all points in question regarding repair station requirements. An application for a foreign repair station certificate will be made on Form ACA–394, which may be obtained from the CAA International Field Office nearest the applicant.

(e) *Brochure.* Each foreign repair station shall furnish, at the time of making application, a suitably bound brochure, which shall include a description of the physical characteristics of the facilities, supplemented by photographs. The brochure shall also include a description of the inspection system, an organizational chart, the names and titles of managing and supervisory personnel, and a list of contracted services, if any, giving the names of the contractors and the type of service rendered by them. It will be necessary to furnish the brochure in duplicate.

(f) *Application for reissuance of foreign repair station certificate.* A foreign repair station certificate expires one year after date of issuance. In order to expedite the handling of reissuance of the certificate, the repair station should, within thirty days prior to the expiration date, apply for reissuance of the certificate. The application should be addressed to the Chief Advisor of the International Field Office nearest the repair station's place of business. If approved, the repair station will be notified to that effect by the Washington office of the CAA through normal channels of communication. Foreign repair stations failing to apply for reissuance prior to the expiration date shall apply for the repair station certificate in the same manner as for original certification. However, in this case it will not be necessary to furnish copies of the brochure required in paragraph (e) of this section. A certificated foreign repair station shall not exercise its privileges beyond the expiration date of the certificate.

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

§ 52.6–1 *Issuance (CAA interpretations which apply to § 52.6)*—(a) *General.* The applicant must not operate as a certificated repair station nor advertise as such until he is in possession of a valid repair station certificate.

§ 52.7 *Duration.* (a) A domestic repair station certificate 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 foreign repair station certificate shall expire one year 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: *Provided,* That upon a showing of continued compliance with § 52.50 it may be reissued for additional 12-month periods upon application to the Administrator.

§ 52.7–1 *Duration (CAA interpretations which apply to § 52.7).* (a) Any domestic repair station certificate which has been either surrendered, suspended, revoked, or otherwise terminated by order of the Board must be delivered to a CAA Aviation Safety Agent.

(b) Any foreign repair station certificate which has been either surrendered, suspended, revoked, or otherwise terminated by order of the Board must be delivered to a CAA advisor assigned to the International Field Office which has jurisdiction over the activities of the particular foreign repair station.

§ 52.8 *Exchange of certificates.* The Administrator shall, not later than one year from the effective date of this part, reinspect all repair stations certificated prior to the effective date of this part.

Upon the conclusion of each reinspection the existing certificate and ratings of such repair station shall expire, and the certificate shall be returned to the Administrator. New certificates 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 repair station shall comply with the requirements of this part in effect immediately prior to this revision.

§ 52.8–1 *Exchange of certificates (CAA policies which apply to § 52.8)*— (a) *Procedure for exchange of certificates.* (1) It is the responsibility of the CAA to inspect all repair stations holding certificates issued prior to June 15, 1952. The inspecting Aviation Safety Agent shall inform the repair station, in writing, of his intent to conduct an inspection for recertification. The repair station shall be allowed a minimum of 30 days, from the date of receipt of the Agent's letter, in which to study the revised regulation and prepare for the inspection. Prior to the commencement of the inspection, the repair station will execute an application for a Repair Station Certificate, hereinafter referred to as Form ACA–394.

(2) The Washington office of the CAA will make the final approval or disapproval of the application. If approved, the repair station will be issued a new certificate, including ratings, operating specifications, and limitations. In any case, the repair station will surrender its old certificate and rating record to the inspecting agent upon his request.

§ 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.

§ 52.9–1 *Display (CAA interpretations which apply to § 52.9).* The repair station certificate must be displayed in a location normally accessible to the general public and must not be obscured. The certificate and all documents thereof must be made available to an authorized representative of the Administrator or the Board.

§ 52.10 *Change of facilities.* No change in location or in the housing and facilities required by § 52.21 shall be made by a certificated repair station without the prior written approval of the Administrator.[2]

§ 52.10–1 *Procedure for changing the location of a certificated repair station (CAA policies which apply to § 52.10).* (1) A repair station changing its location should notify the Aviation Safety Agent who has jurisdiction over the repair station certificate, using Form ACA–394 (Part II) for this purpose. Such notification should be made at least thirty days prior to the date the repair station plans to change its location. Since repair station certificates are based in part on the physical facilities of a repair station at a specific location, it will be necessary for the agent to conduct an inspection of the repair station at its new location. The repair station should allow ample time for this inspection and subsequent approval or disapproval when planning to notify the CAA of a change in location. If approved, an amended certificate shall be issued indicating the latest location.

(2) The CAA will prescribe conditions under which the station may operate while the move is in process.

§ 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.

§ 52.11–1 *Scope of advertising (CAA policies which apply to § 52.11).* The objective of § 52.11 is to provide the public with reasonable information setting forth the classification and capabilities of a repair station which holds itself to

[2] Requests for approval of a change of location, housing, or facilities should be submitted to the Regional Administrator of Civil Aeronautics for the region in which the repair station is located.

be certificated by the CAA. Any piece of advertising indicating directly or indirectly that the repair station is certificated by the CAA should clearly indicate the work for which it is rated under the certificate.

§ 52.11–2 *Advertising media (CAA interpretations which apply to § 52.11).* The following advertising media are considered to come within the scope of § 52.11:

(a) Business letterheads;
(b) Billheads and statements;
(c) Customer estimates and inspection forms;
(d) Hangar or shop signs;
(e) Advertisements in newspapers, periodicals or trade journals;
(f) Any form of promotional media.

§ 52.11–3 *Advertisement of ratings (CAA interpretations which apply to § 52.11).* The basic rating or ratings and the classes of rating or ratings for which the repair station has been certificated must be clearly indicated on any of the advertising media mentioned in § 52.11–2, upon which is imprinted a statement, indicating directly or indirectly, that the repair station is certificated by the CAA. Examples of methods that may be used to meet this requirement may be found in the Appendix.

§ 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 this subchapter.

§ 52.12–1 *Formal inspections (CAA policies which apply to § 52.12).* The applicant's compliance with the requirements of this part will be determined by the Aviation Safety Agent after completing an inspection of the applicant's facilities. After the original inspection for certification or recertification, formal inspections will be made by an Aviation Safety Agent every 4 months. This inspection will be made to determine if the repair station continues to meet the requirements under which it was originally certificated. The inspection will cover the adequacy of the repair station's inspection system, personnel, stock facilities, equipment, records, and a determinaton will be made as to the ability of the repair station to comply with all requirements of this part. Upon completion of each formal inspection, the inspecting representative will notify the repair station, in writing, of any discrepancies noted during his inspection.

§ 52.12–2 *Informal inspection (CAA policies which apply to § 52.12).* An Aviation Safety Agent or a representative of the Board may make spot checks from time to time between formal inspections.

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

§ 52.13–1 *Nontransferability of certificate (CAA interpretations which apply to § 52.13).* An amended repair station certificate will be required when a corporation holding a repair station certificate sells or transfers all its assets, including the repair station, to another person, or all members of a copartnership sell their interest in the repair station to other persons. In the above cases an application for an amended repair station certificate must be made by the new owners of the business, and the procedure given in § 52.5–1 must be followed.

DOMESTIC CERTIFICATE REQUIREMENTS

§ 52.20 *Requirements for issuance of certificate.* No certificate for a repair station to be located within the United States shall be issued until the requirements of §§ 52.21 through 52.25 and §§ 52.30 through 52.36, as appropriate, are met.

§ 52.20–1 *General (CAA policies which apply to § 52.20).* The CAA will not issue a repair station certificate to an applicant unless the inspecting agent finds that all the requirements of this part have been complied with in all respects. Limitations found necessary because of operating conditions peculiar to a specific repair station will be considered when such limitations are fully compensated for by other factors and the standard is not lowered. In such cases the limitations will be noted appropriately upon the repair station's certificate.

§ 52.21 *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, inspection, repair, alteration, and assembly.

§ 52.21-1 *Housing and facilities (CAA interpretations which apply to § 52.21)*—

(a) *General.* The objectives of § 52.21 are to assure that the work being accomplished is protected at all times from the elements (rain, snow, wind, dust, and heat); that the workers are so protected that their physical efficiency will not impair the quality of work performed; and that any maintenance operation will have the proper facilities for its successful and efficient accomplishment.

§ 52.21-2 *Working space, storage facilities, and parts protection. (CAA interpretations which apply to § 52.21)*—

(a) *Working space*—(1) *Shop space.* Shop space is defined as that space in a repair station to which the location of machine tools and equipment is assigned and where the largest volume of bench work is accomplished. This space does not have to be partitioned, but the machines or equipment may be required to be segregated under certain conditions. For example, machines or equipment must be segregated when:

(i) Machine or woodwork is performed so close to the assembly area that chips, etc. might inadvertently fall into assembled or partially assembled work;

(ii) Parts cleaning units, unpartitioned, are close to other operations;

(iii) Fabric work is done in an area where oils and greases are present;

(iv) Painting and spraying is done in an area so arranged that paint or paint dust can fall on assembled or partially assembled work;

(v) Dirt, paint spray, cleaning or machining operations are conducted in close proximity to testing operations involving the use of precision test equipment.

(2) *Assembly space.* Assembly space is defined as that space in a repair station in which the largest volume of final assembly work is accomplished. The assembly space must be ample to accommodate the largest item being worked on, appropriate to the class of rating for which the repair station is certificated. The assembly space must be an enclosed structure that will meet the objectives as stated in § 52.21-1.

(b) *Storage facilities.* Storage facilities include those areas of the repair station to which is allocated, exclusively, the storage of standard parts, spare parts, and raw materials. These areas must be segregated from the shop and working space. They must be so organized that only acceptable parts and supplies will be issued to the job in process. Standard good practice for the proper protection of material in storage must be followed at all times.

(c) *Parts protection.* All parts in process of disassembly, assembly, or awaiting assembly or disassembly must be properly stored and protected to eliminate the possibility of damage to the parts.

(d) *Ventilation.* Shop, assembly, and storage areas must be suitably ventilated so that the physical efficiency of the workers will not be impaired.

(e) *Lighting.* All work being accomplished must be illuminated sufficiently so as not to adversely affect the quality of the job being accomplished.

(f) *Temperature control.* The temperature of the shop and assembly space must be so controlled as to not impair the physical efficiency of the workers. Where special maintenance operations are performed, such as fabric work, painting, etc., the temperature and humidity control must be adequate to assure the airworthiness of the article undergoing maintenance.

§ 52.21-3 *Special housing and facility requirements (CAA interpretations which apply to § 52.21)*—(a) *Airframe repair stations.* In addition to the requirements of §§ 52.21-1 and 52.21-2, airframe repair stations must have suitable permanent type housing sufficient to accommodate at least one of the heaviest aircraft within the weight class of the repair station rating. For example, a repair station with an airframe rating, class 1, must be able to house at least one aircraft with a gross weight of 12,500 pounds. If the repair station's location is such that climatic conditions permit work to be accomplished outdoors, permanent type work docks will be acceptable provided such work docks meet the objective as stated in § 52.21-1.

(b) *Engine repair stations.* In addition to the requirements of §§ 52.21-1 and 52.21-2, engine repair stations must provide suitable racks or stands for the purpose of segregating complete engine assemblies from each other during assembly and disassembly operations. Covers must also be provided for the protection of parts awaiting assembly or during assembly to prevent dust or other foreign particles from entering or falling upon these parts.

(c) *Propeller repair station.* In addition to the requirements of §§ 52.21-1 and 52.21-2, propeller repair stations must have suitable stands, racks, or other fixtures for the proper storage of propellers after repair or overhaul.

(d) *Instrument repair stations.* In addition to the requirements of §§ 52.21-1 and 52-21-2, instrument repair stations should, if possible, be air-conditioned. Where air-conditioning is not installed in the shop space allocated to final assembly, such space must be dust free. Shop and assembly areas must be kept clean at all times in order to reduce the possibility of the entrance of foreign particles into instrument assemblies.

(e) *Accessory repair stations.* In addition to the requirements of §§ 52.21-1 and 52.21-2, accessory repair stations must provide suitable trays, racks or stands for the purpose of segregating complete assemblies from each other during assembly and disassembly operations. Covers must also be provided for the protection of parts awaiting assembly or during assembly to prevent dust or other foreign particles from entering or falling upon these parts.

(f) *Radio repair stations.* In addition to the requirements of §§ 52.21-1 and 52.21-2, radio repair stations must provide hot lockers or other similar fixtures used for the storage of those parts which are susceptible to the accumulation of dampness or moisture.

§ 52.22 *Personnel.* (a) Each applicant shall have adequate personnel competent to perform, supervise, and inspect the work for which the repair station is rated.

(b) Any individual who is directly in charge of the inspection, maintenance, overhaul, or repair functions shall have had at least 18 months of practical experience with the procedures, practices, inspection methods, materials, tools, machine tools, and equipment generally used in such functions as are related to the work for which the repair station is rated.

(c) Any individual who is directly in charge of inspection, maintenance, overhaul, or repair functions shall be either an appropriately certificated mechanic or an appropriately certificated repairman.

(d) In addition to the requirements of paragraph (b) of this section, at least one of the individuals performing such functions under a repair station certificate with an airframe rating shall also possess experience in the methods and procedures prescribed by the Administrator for returning aircraft to service after annual inspections, and the issuance of other flight authorizations.

§ 52.22-1 *Personnel (CAA interpretations which apply to § 52.22)*—(a) *General.* An objective of this part is to place greater responsibility for the repair station's performance on the responsible managing officials. To this end it is essential that repair station officials give careful consideration to the qualifications and competency of individuals in their employ. The primary responsibility for the satisfactory performance of a worker will be the repair station's.

(b) *Required number of personnel.* The number of repair station personnel will vary according to the type of work and volume engaged in. However, a repair station must provide a sufficient number of properly qualified employees in keeping with the volume of work in process. This number must not be reduced beyond the number required for the production of airworthy work performed in an efficient manner.

(c) *Supervisory personnel.* The repair station must provide a sufficient number of competent supervisors over all phases of the repair station's activities. These supervisors need not exercise overall supervision at a management level, but must exercise direct supervision over working groups. When apprentices are utilized in working groups engaged in assembly operations, or other operations which might be critical to the safety of the aircraft, the repair station must provide at least one competent supervisor for each ten apprentices. This ratio need not apply where apprentices have been integrated into working groups composed essentially of experienced workers.

(d) *Experience requirements for supervisors.* Supervisors directly in charge of maintenance operations must have at least 18 months of experience with the procedures, practices, inspection methods, materials, tools, machine tools and equipment generally used in such functions as related to the work for which the repair station is rated. Experience obtained as an apprentice or student mechanic is not considered appropriate. It is the responsibility of the repair station to determine the competency of its supervisory personnel. However, the inspecting Aviation Safety Agent may determine such competency and ability by requesting the submission of employment and experience records of the individual or by personal examination or test.

(e) *Competency of nonsupervisory personnel.* The repair station must determine the competency of all uncertificated workers engaged in maintenance operations under the terms of a repair station certificate. Competency should be determined on the basis of practical examination or authentic employment record.

(f) *Special requirements for airframe repair stations.* Repair stations holding an airframe rating must provide appropriately rated certificated personnel who possess experience in the methods and procedures prescribed by the Administrator for returning aircraft to service after annual inspection and the issuance of other flight authorizations such as ferry permits. The repair station must recommend such personnel at the time of making application for a repair station certificate. Because of the experience, sense of responsibility, and integrity necessary to the public trust, any individual recommended by the repair station to conduct annual inspections and issue flight authorizations will be subject to personal evaluation by the CAA. The repair station must be prepared to substantiate the above requirements to the inspecting agent.

(g) *Special requirements for limited ratings.* Since a limited rating is based on the ability of a repair station to perform a specialized service to a particular aircraft, engine or component, or perform a maintenance technique requiring special knowledge and equipment, all limited repair stations must provide personnel having detailed knowledge of the particular maintenance function or technique for which the rating is issued. The individual may obtain such knowledge by attending a factory school or by obtaining the equivalent knowledge through long experience with the product or technique involved.

§ 52.23 *Recommendation of certificated repairman.* A certificated repairman shall be recommended in accordance with the provisions of Subpart B of Part 24 of this subchapter.

§ 52.23–1 *Recommendation of certificated repairman (CAA interpretations which apply to § 52.23).* At the time of making application for a repair station certificate, the applicant must recommend and certify one or more individuals to the CAA, at or above the level of shop foreman or department head, stating that they are competent to perform and

supervise the work to which they are assigned. The repair station should not certify personnel below the level of shop foreman or department head. The CAA will issue certificates to individuals so recommended by the repair station.

§ 52.24 *Records of supervisory and inspection personnel.* Each repair station shall maintain current records of personnel who are directly in charge of maintenance, repair, inspection, or alteration and shall furnish copies of any personnel changes thereof to the Administrator in a manner and form prescribed by him. These records shall contain such information concerning the qualifications of each such individual as is necessary to show compliance with the experience qualifications of this subchapter. No certificated repair station shall utilize the services of an individual directly in charge of maintenance, repair, inspection, or alteration unless current records are maintained for such individual as required in this section.

§ 52.24-1 *Records of supervisory and inspection personnel (CAA rules which apply to §§ 52.5 and 52.24)*—(a) *Employment records.* An applicant for a repair station certificate shall attach to the application, and a repair station shall maintain, a roster of all supervisory and inspection personnel. The roster of supervisory personnel shall include officials of the repair station responsible for its management, in addition to technical supervisors such as foremen, crew chiefs, etc. In regard to inspection personnel, the roster shall include the names of the chief inspector in addition to those inspectors responsible for making final determinations as to the airworthiness of an article prior to its release for service. An employment summary shall also be given for each individual on the roster. The summary shall include the following:

(1) Scope of present assignment (e. g., airframe overhaul, airframe final assembly, engine inspection department, airframe final inspection);

(2) Present title (e. g., chief inspector, metal shop foreman, engine test crew chief, etc.);

(3) Total experience in years on scope of work assigned;

(4) Past employment record, giving places and term of employment by month and date;

(5) Type and serial number of CAA certificates held (e. g., A&E 12175, Designated Aircraft Maintenance Inspector No. 4100).

(b) *Roster changes.* The repair station shall change the roster called for in paragraph (a) of this section, under the following conditions:

(1) When the employment of an individual named on the roster has been terminated;

(2) When an individual is assigned to duties which require the addition of his name to the roster;

(3) When any appreciable change takes place in the duties and scope of assignment of an individual named on the roster.

Under any of the conditions in this paragraph the repair station shall notify the inspecting agent, using Form ACA-394 (Part II) for this purpose.

§ 52.25 *Inspection system.* An applicant for a repair station certificate shall have an inspection system adequate for satisfactory quality control.

§ 52.25-1 *Inspection system (CAA interpretations which apply to § 52.25)*—(a) *Inspection personnel.* Inspection personnel must be thoroughly familiar with all inspection methods, techniques, and equipment used in their specialty to determine the quality or airworthiness of an article undergoing maintenance or alteration. Inspection personnel must also maintain proficiency in the use of various types of inspection aids. They must also have available and be familiar with current specifications, involving inspection tolerances, limits and procedures, as set forth by the manufacturer of the product undergoing inspection, or other forms of inspection information such as CAA airworthiness directives, bulletins, etc. Where magnetic, fluorescent, or other forms of mechanical inspection devices are used, the operator-inspector must be skilled in the operation of such

equipment and must be competent to properly interpret defects indicated by such equipment.

(b) *Inspection of incoming material.* A repair station must provide a satisfactory method of inspecting incoming material to the extent found necessary to insure that all incoming material is in a good state of preservation and free from any apparent defects or malfunctioning prior to being placed in stock for use in any aircraft or component.

(c) *Preliminary inspection.* A repair station must provide a method whereby all items undergoing maintenance are given a preliminary inspection to determine the state of preservation or defects of the item involved. The results of this inspection must be entered on an appropriate form supplied by the repair station, which must remain with the item undergoing maintenance until it is released to service.

(d) *Inspection for hidden damage.* Prior to the commencement of any work, all airframes, powerplants, or other components that have been involved in an accident must be given a searching inspection for hidden damage, including areas adjacent to the obviously damaged members or components. The results of this inspection must be recorded on the appropriate inspection form mentioned in paragraph (c) of this section.

(e) *Inspection procedures manual.* Upon application for a repair station certificate, an applicant must prepare an inspection procedures manual, which must be maintained in a current condition at all times thereafter. This manual should not be confused with the type that contains detailed inspection standards or instructions for a particular airframe, powerplant, accessory, etc. The procedures manual must explain the internal inspection system of the repair station in a form that is readily understood by any new employee of the repair station. It must state in detail the repair station's inspection system, including the continuity of inspection responsibility, samples of inspection forms, and their method of execution. In addition, the manual must contain all items under paragraphs (a) through (d) of this section. The procedures manual should refer, when necessary, to the appropriate manufacturer's inspection standards for the overhaul or repair of the particular article involved. A repair station must provide copies of this manual for all supervisory and inspection personnel, and must assure that these individuals are thoroughly familiar with its contents. The manual must also be made available to personnel other than supervisors or inspectors, so that they may be familiar with the inspection system.

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

(a) Airframe: (1) Class 1: Composite construction up to and including 12,500 lbs. maximum certificated take-off weight;

(2) Class 2: Composite construction above 12,500 lbs. maximum certificated take-off weight;

(3) Class 3: All-metal construction up to and including 12,500 lbs. maximum certificated take-off weight;

(4) Class 4: All-metal construction above 12,500 lbs. maximum certificated take-off weight.

(b) Powerplant: (1) Class 1: Reciprocating engines up to and including 400 horsepower;

(2) Class 2: Reciprocating engines above 400 horsepower;

(3) Class 3: Turbine engines.

(c) Propeller: (1) Class 1: Fixed-pitch type;

(2) Class 2: All other types, by make.

(d) Radio:[3] (1) Class 1: Communication equipment;
(2) Class 2: Navigational equipment;
(3) Class 3: Radar.
(e) Instrument: (1) Class 1: Mechanical;
(2) Class 2: Electrical;
(3) Class 3: Gyroscopic;
(4) Class 4: Electronic.
(f) Accessory: (1) Class 1: Mechanical, by type;
(2) Class 2: Electrical, by type;
(3) Class 3: Electronic, by type.

§ 52.26-1 *Ratings (CAA interpretations which apply to § 52.26 (c) through (f))*—(a) *General.* The purpose of this section is to explain the types of propellers, radio equipment, instruments, and accessories which are set forth by classes under the appropriate ratings.

(b) *Propeller*—(1) *Class 1; fixed-pitch type.* Fixed-pitch type means all propellers, either of wood, metal or composite construction, including those propellers whose pitch is adjustable on the ground only and not controllable otherwise. Examples: Hartzell, McCauley, and Curtiss-Reed.

(2) *Class 2; other types by make.* This means all controllable propellers. A repair station will be rated for each specific make of controllable propeller it is equipped and able to service. Examples: Hamilton-Standard, Curtiss Electric, Aero Products, Koppers, etc.

(c) *Radio*—(1) *Class 1; communication equipment.* Communication equipment means any radio transmitting and/or receiving equipment used in aircraft to receive or transmit communication in flight, regardless of carrier frequency and type of modulation utilized. It also includes auxiliary and related equipment such as aircraft interphone systems, voice power amplifier systems, electrical or electronic intercrew signaling devices and similar equipment. It does not include any apparatus or device used for the navigation of aircraft or as an aid to navigation. It does not include equipment used to measure altitude terrain clearance or other measuring apparatus or devices operating upon either radio or radar principles, nor does it include mechanical, electrical, gyroscopic, and electronic instruments which may form a part of communications radio equipment.

(2) *Class 2; navigational equipment.* Navigational equipment means any radio system used in aircraft to accomplish or assist in en route and approach navigation of an aircraft, except such equipment which operates on radar or pulsed radio frequency principles. It does not include equipment used to measure altitude terrain clearance or other distance measuring apparatus or devices operating either on pulsed radio frequency or radar principles.

(3) *Class 3; radar equipment.* Radar equipment means any aircraft electronic system operating from either radar or pulsed radio frequency principles.

(d) *Instruments*—(1) *Class 1; mechanical.* Mechanical instruments mean any of the following types used on aircraft or for the operation of aircraft: Diaphragm, bourdon tube, optical and power driven centrifugal, averoid type. Examples of these instruments are tachometers, air speed indicators, pressure gauges, drift sights, magnetic compasses, altimeters, etc.

(2) *Class 2; electrical.* Electrical instruments mean any instrument of the following types: Syncro-style and electrical indicating instruments and systems. Examples of these instruments are the various remote indicating instruments, cylinder head temperature gauges, etc.

(3) *Class 3; gyroscopic.* Gyroscopic instruments mean any instrument or instrument system employing the gyro-

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

scopic principle and motivated by either air pressure or electrical energy. Examples are: Automatic pilot control units, turn and bank indicators, directional gyros and their components, flux gate and gyrosyn compasses.

(4) *Class 4; electronic.* Electronic instruments mean any instrument whose operations depend upon the use of an electron tube or similar device. Examples: Capacitance type quantity gauges, system amplifiers, engine analyzers.

(e) *Accessory*—(1) *Class 1; mechanical.* Mechanical accessories mean those accessories which depend on friction, hydraulics, mechanical linkage, or pneumatic pressure for their operation. Examples: Aircraft wheel brakes, mechanically driven pumps, carburetors, aircraft wheel assemblies, shock absorber struts, hydraulic servo units.

(2) *Class 2; electrical.* Electrical accessories mean any accessories depending on electrical power for their operation, and generators. Examples: Starters, voltage regulators, electric motors, electrically driven fuel pumps, magnetos, etc.

(3) *Class 3; electronic.* Electronic accessories mean any accessories whose operations depend upon the use of an electron tube or similar device. Examples: Supercharger, temperature regulating, and air conditioning controls, etc.

§ 52.27 *Limited ratings.* Ratings may be issued with appropriate limitations, where found appropriate by the Administrator, to a repair station which engages solely in the maintenance, repair, or alteration of a particular type of airframe, powerplant, propeller, radio, instrument, accessory, 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.

§ 52.27–1 *Limited ratings (CAA policies which apply to § 52.27)*—(a) *General.* The type of work for which the Administrator considers a limited rating appropriate is listed in this section. This list may be revised from time to time as the needs of the industry dictate. If a particular activity is not included on the list, an applicant should apply in the manner stated in § 52.5–1, and the application will be submitted to the CAA's Washington office for further study. When the Administrator finds that the applicant's request for such a rating is appropriate, the Administrator may authorize a rating not covered in this section.

(b) *Scope of limited ratings.* All limited ratings are issued for the maintenance, inspection, repair and alteration of an aircraft, engine or other component. In addition, ratings may be issued for some special repair, maintenance technique or process which requires equipment and skills not normally found in regular repair stations. Limited ratings may be issued for a specific model aircraft, engine, or component, or they may be issued for a number of products produced by a particular manufacturer.

(c) *List of appropriate limited ratings.* (1) Airframes of a particular make and model;

(2) Engines of a particular make and model;

(3) Propellers of a particular make and model;

(4) Instruments of a particular make and model;

(5) Radio equipment of a particular make and model;

(6) Accessories of a particular make and model;

(7) Landing gear component overhaul and repair;

(8) Float overhaul and repair, by make;

(9) Magnetic and fluorescent inspection;

(10) Emergency equipment overhaul and repair;

(11) Rotor blade overhaul and repair, by make and model;

(12) Aircraft fabric work.

§ 52.30 *Equipment and materials; general.* An applicant for a repair station certificate 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.

§ 52.30–1 *Equipment and materials (CAA interpretations which apply to § 52.30)*—(a) *General.* The objective of this section is to assure that a repair station has adequate equipment and materials, proportionate to the volume of work undertaken, to do any job within the scope of its ratings. The equipment and materials must be of such type that the work for which they are being used can be performed in a competent, efficient manner. All inspection and test equipment must be checked at regular intervals to insure correct calibration. Equipment and materials required for the various ratings must be located on the premises of the repair station and must also be under the full control of such station, unless the equipment and materials are used in a function which the repair station is authorized under this part to contract to outside agencies. In this event the repair station will be responsible for the airworthiness of the article unless the contractor is an appropriately rated repair station. The applicant will have the responsibility of choosing suitable tools and equipment (which may be either equipment or tools recommended by a manufacturer in the overhaul or repair of his product or the equivalent of such equipment or tools) to accomplish the specific functions that are set forth in the following sections. The inspecting CAA agent will determine if these tools, equipment, and materials are satisfactory within the intent of this regulation. (See Appendix A for equipment check list).

§ 52.30–2 *Equipment list (CAA policies which apply to § 52.30)* At the time of making application for a repair station certificate and ratings, the applicant will furnish, in duplicate, a listing of all equipment and fixtures which he considers satisfactory to comply with requirements of this and succeeding sections. The listing of hand tools usually considered a part of a mechanic's tool kit is not required; neither is a detailed inventory of the applicant's supply of spare parts, standard parts, and other materials used for the maintenance of aircraft. Since it is a requirement that the listed equipment be available at all times and since such equipment represents the minimum necessary to perform all job functions in a competent and efficient manner, it will not be necessary for a repair station to furnish amendments or revisions to this list.

§ 52.31 *Equipment and materials; airframe rating.* An applicant for an airframe rating shall be equipped to perform maintenance, repair, inspection, or alteration operations on such of the following as are appropriate to the rating sought:

(a) Steel structural components;
(b) Wood structure;
(c) Alloy skin and structural components;
(d) Fabric covering;
(e) Control systems;
(f) Landing gear systems;
(g) Electric wiring systems;
(h) Assembly operations.

§ 52.31–1 *Equipment and materials; airframe rating (CAA interpretations which apply to § 52.31)*—(a) *General.* An applicant for any class of airframe rating must provide equipment and materials for the competent and efficient performance of the following job functions within the class of rating applied for: (An asterisk (*) indicates that the applicant need not have equipment and materials on his premises for this function provided he contracts that particular type work to an outside agency having such equipment and materials).

(b) *Class 1; composite construction up to and including 12,500 pounds maximum certificated weight.* (1) Steel structural components:

Repair or replace steel tubes and fittings, using the proper welding techniques when appropriate;
Anticorrosion treatment of the interior and exterior of steel parts;
Metal plating or anodizing*,
Simple machine operations such as making bushings, bolts, etc.,
Complex machine operations involving the use of planers, shapers, milling machines, etc.*,
Fabricate steel fittings,
Abrasive air blasting and chemical cleaning operations*,
Heat treatment*,
Magnetic inspection*,
Repair or rebuild metal tanks*.

(2) Wood structure:

Splice wood spars,
Repair ribs and spars (wood),
Fabricate wood spars*,
Repair or replace metal ribs,
Interior alignment of wings,
Repair or replace plywood skin,
Treatment against wood decay.

(3) Alloy skin and structural components:

Repair and replace metal skin, using power tools and equipment,
Repair, replace, and fabricate alloy members and components such as tubes, channels, cowling, fittings, attach angles, etc.,
Alignment of components, using jigs or fixtures as in the case of joining fuselage sections or other similar operations,
Make up wooden forming blocks or dies,
Fluorescent inspection of alloy components.*

(4) Fabric covering:

Repairs to fabric surfaces,
Recovering and refinishing of components and entire aircraft.*

(5) Control systems:

Renewing control cables, using swaging and splicing techniques,
Rigging complete control system,
Renewing or repairing all control system hinge point components such as pins, bushings, etc.,
Install control system units and components.

(6) Landing gear systems:

Renew or repair all landing gear hinge point components and attachments such as bolts, bushings, fittings, etc.,
Overhaul and repair elastic shock absorber units,
Overhaul and repair hydraulic-pneumatic shock absorber units *,
Overhaul and repair brake system components *,
Conduct retraction cycle tests,
Overhaul and repair electrical circuits,
Overhaul and repair hydraulic system components *,
Repair or fabricate hydraulic lines.

(7) Electric wiring systems:

Diagnose malfunctions,
Repair or replace wiring,
Installation of electrical equipment,
Bench check electrical components (this check is not to be confused with the more complex functional test after overhaul).

(8) Assembly operations:

Assembly of airframe component parts such as landing gear, wings, controls, etc.,
Rigging and alignment of airframe components, including the complete aircraft and control system,
Installation of power plants,
Installation of instruments and accessories,
Assembly and fitting of cowling, fairings, etc.,
Repair and assembly of plastic components such as windshields, windows, etc.,
Jack or hoist complete aircraft,
Conduct aircraft weight and balance operations (this function will be conducted in draft free area),
Balance control surfaces.

(c) *Class 2; composite construction above 12,500 pounds maximum certificated weight.* The various job functions under this class for which appropriate equipment and materials are required, are the same as under Class 1.

(d) *Class 3; all metal construction up to and including 12,500 pounds maximum certificated weight.* The various job functions under this class for which appropriate equipment and materials are required, are the same as under Class 1.

(e) *Class 4; all metal construction above 12,500 pounds maximum certificated weight.* The various job functions under this class for which appropriate equipment and materials are required, are the same as under Class 1.

§ 52.32 *Equipment and materials; powerplant rating.* An applicant for a powerplant rating shall be equipped, as appropriate to the rating sought, 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 arrangements suitable to the Administrator for the performance of this function in lieu thereof.

§ 52.32-1 *Equipment and materials; powerplant rating (CAA interpretations which apply to § 52.32)*—(a) *General.* An applicant for all classes of powerplant ratings must provide such equipment and materials as are necessary for the competent and efficient performance of the following job functions within the class of rating applied for. An asterisk (*) indicates that the applicant need not have equipment and materials for that function provided he contracts the particular function to an outside agency having such equipment and materials.

(b) *Class 1; Engines up to and including 400 horsepower.* (1) Maintain, repair and alter powerplants, including replacement of parts:

Chemical and mechanical cleaning,
Disassembly operations.
Abrasive air blasting of parts,
Replacement of valve guides and seats,
Replacement of bushings, bearings, pins, inserts, etc.,
Plating operations (copper, silver, cadmium, etc.)*,
Heating operations (involving the use of recommended techniques requiring controlled heating facilities),
Chilling or shrinking operations,
Removal and replacement of studs,
Inscribing or affixing identification information,
Painting of powerplants and components,
Anticorrosion treatment for parts,
Replacement and repair of powerplant alloy sheet metal and steel components such as baffles, fittings, etc.*.

(2) Inspect all parts, using appropriate inspection aids:

Magnetic, fluorescent and visual inspection of parts,
Precise determination of clearances and tolerances of all parts,
Inspection for alignment of connecting rods, crankshafts, impeller shafts, etc.,
Balancing of parts, including crankshafts, impellers, etc.,
Inspection of valve springs.

(3) Accomplish routine machine work:

Precision grinding, honing and lapping operations (includes crankshaft, cylinder barrels, etc.)*,
Precision drilling, tapping, boring, milling and cutting operations,
Reaming of inserts, bushings, bearings and other similar components,
Refacing of valves.

(4) Perform assembly operations:

Valve and ignition timing operations,
Fabricate and test ignition harnesses,
Fabricate and test rigid and flexible fluid lines,
Prepare engines for long- or short-term storage,
Bench check powerplant accessories (this check is not to be confused with the more complex performance test of overhaul),
Hoist engines by mechanical means,
Install engines in aircraft*,[4]
Align and adjust engine controls*,[4]

(5) Test overhauled powerplants in compliance with manufacturers' recommendations. The test equipment will be the same as recommended by the manufacturers of the particular engines undergoing test or equivalent equipment that will accomplish the same purpose. The function of engine testing will also include all accessories of the particular engine that will be installed in an aircraft as components of the powerplant. The testing function may be performed by the repair station itself, or may be contracted to an outside agency. In either case the repair station will be responsible for the final acceptance of the tested engine.

(c) *Class 2; engines above 400 horsepower.* The various job functions under this class, for which appropriate equipment and materials are required, are the same as under Class 1.

(d) *Class 3; turbine engines.* Functional and equipment requirements for turbine engines will be governed entirely by the recommendations of the manufacturer, including techniques, inspection methods, and test.

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[4] These functions, when completed, must be inspected by either an appropriately rated certificated mechanic or certificated repairman. Persons supervising or inspecting these functions must be thoroughly familiar with the pertinent installation details involved.

§ 52.33 *Equipment and materials; propeller rating.* An applicant for a propeller rating shall be equipped, as appropriate to the rating sought, to:

(a) Maintain, repair, and alter, including installation and the replacement of parts;

(b) Inspect components, using appropriate inspection aids;

(c) Repair or replace components;

(d) Balance; and

(e) Test propeller pitch - changing mechanisms in compliance with manufacturers' recommendations or shall have made arrangements suitable to the Administrator for the performance of this function in lieu thereof.

§ 52.33-1 *Equipment and materials; propeller rating (CAA interpretations which apply to § 52.33)*—(a) *General.* An applicant for all classes of propeller ratings must provide equipment and materials for the competent and efficient performance of the following job functions within the class of rating applied for. An asterisk (*) indicates that the applicant need not have equipment and materials for this function provided he contracts that particular function to a competent outside agency having such equipment and materials.

(b) *Class 1; fixed-pitch propellers.* (1) Maintain, repair and alter propellers, including installation and the replacement of parts:

Replace blade tipping,
Refinish wood propellers,
Make wood inlays,
Refinish plastic blades,
Straighten bent blades within repairable tolerances,
Modify blade diameter and profile,
Polish and buff,
Painting operations,
Remove from and reinstall on powerplants.

(2) Inspect components, using appropriate inspection aids:

Inspect propellers for conformity with manufacturer's drawings and specifications,
Inspect hubs and blades for failures and defects, using magnetic or fluorescent inspection devices*,
Inspect hubs and blades for failures and defects, using all visual aids, including the etching of parts,
Inspect hubs for wear of splines or keyways or any other defect.

(3) Repair or replace components: (Not applicable to this class).

(4) Balance propellers:

Test for proper track on aircraft,
Test for horizontal and vertical unbalance (this test will be accomplished with the use of precision equipment and in a draft-free area).

(5) Test propeller pitch changing mechanisms: (Not applicable to this class.)

(c) *Class 2; all other types by make.* (1) Maintain, repair and alter propellers, including installation and the replacement of parts:

All functions listed under Class 1 of paragraph (b) (1) of this section when applicable to the make and model for which rated,
Properly lubricate moving parts,
Assemble complete propeller and sub-assemblies, using special tools when required.

(2) Inspect components, using appropriate inspection aids: All functions listed under Class 1 of paragraph (b) (2) of this section when applicable to the make and model for which rated.

(3) Repair or replace component parts:

Replace blades, hubs, or any of their components,
Replace or repair anti-icing devices,
Remove nicks or scratches from blades,
Repair or replace electrical propeller components.

(4) Balance propellers: All functions listed under Class 1 of paragraph (b) (4) of this section, when applicable to the make and model for which rated.

(5) Test propeller pitch changing mechanism:

Test hydraulically, propellers and components,
Test electrically operated propellers and components,
Test of constant speed devices*.

§ 52.34 *Equipment and materials; radio rating.* An applicant for a radio rating shall be equipped, as appropriate to the rating sought, to:

(a) Diagnose malfunctions;

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

(c) Inspect and test;

(d) Make frequency checks; and

(e) Perform such calibrations as are necessary for the proper operation of equipment.

§ 52.34–1 *Equipment and materials; radio rating (CAA interpretations which apply to § 52.34)*—(a) *General.* An applicant for all classes of radio ratings must provide equipment and materials for the competent and efficient performance of the following job functions within the class of rating applied for. An asterisk (*) indicates that the applicant need not have equipment and materials for this function, provided he contracts that particular function to a competent outside agency having such equipment and materials.

(b) *Class 1; communications equipment*—(1) Diagnose radio malfunctions:

Check aircraft wiring, antennas, connectors, relays and other associated radio components to detect installation faults,
Check engine ignition systems and aircraft accessories to determine sources of electrical interference,
Check aircraft power supplies for adequacy and proper functioning.

(2) Maintain, repair, and alter radios, including installation and the replacement of parts:

Overhaul, test and check dynamotors, inverters, and other radio rotary electrical apparatus,*
Paint and refinish equipment containers,*
Accomplish appropriate methods of marking calibrations, or other information on radio control panels and other components, as required,*
Make and reproduce drawings, wiring diagrams and other similar material required to record alterations and/or modifications to radios (photographs may be used in lieu of drawings when it will serve as an equivalent or better means of recording),*
Fabricate tuning shaft assemblies, brackets, cable assemblies, and other similar components used in radios or aircraft radio installations,*
Align tuned circuits (RF and IF),
Test and repair head sets, speakers, and microphones,
Install and repair aircraft antennas,
Install complete radio systems in aircraft and prepare weight and balance reports* (that phase of radio installation requiring alterations to the aircraft structure must be performed, supervised and inspected by qualified personnel),
Measure modulation values, noise and distortion in radios,
Measure audio and radio frequencies,
Measure radio transmitter power output,
Measure radio component values (inductance, capacitance, resistance, etc.),
Measure aircraft radio antenna, lead-in and transmission line direct current resistance by appropriate methods,
Determine proper aircraft radio antenna, lead-in and transmission line characteristics and locations for type of radio equipment to which connected,
Determine operational condition of radio equipment installed in aircraft by using appropriate portable test apparatus,
Determine proper location for radio antennas on aircraft.

(3) Inspect and test radios:

Perform physical inspection of radio systems and components by visual and mechanical methods,
Perform electrical inspection of radio systems and components by means of appropriate electrical and/or electronic test instruments,
Test radio instruments *,
Test all types of electronic tubes used in equipment appropriate to this rating,
Test electrical components of radios, such as resistors, condensers, transformers, chokes and other related items.

(4) Make frequency checks: Measure radio frequencies to appropriate tolerances and calibrate equipment to such tolerances when applicable.

(5) Perform such calibrations as are necessary for the proper operation of radios: This applies to all functions listed under subparagraphs (1), (2), (3), and (4) of this paragraph.

(c) *Class 2; Navigational equipment.* (1) Diagnose radio malfunctions: Provide equipment and material which are satisfactory to perform all functions listed under Class 1 of paragraph (b) (1) of this section.

(2) Maintain, repair and alter radios, including installation and the replacement of parts:

Measure loop antenna sensitivity by appropriate methods,
Determine and compensate quadrantal error in aircraft direction finder radio equipment,
Measure radio frequency transmission line attenuation.

(3) Inspect and test radios: Provide equipment and material which are satisfactory to perform all functions listed under Class 1 of paragraph (b) (3) of this section.

(4) Make frequency checks: Provide equipment and material which are satisfactory to perform all functions listed under Class 1 of paragraph (b) (4) of this section.

(5) Perform such calibrations as are necessary for the proper operation of radios:

Calibrate instrument landing system equipment to approved performance standards,
Calibrate VHF navigational systems to approved performance standards,
Calibrate VHF marker beacon receiver systems to approved performance standards,
Calibrate any navigational equipment, approach aids or similar equipment, appropriate to this rating, to approved performance standards,
Determine wave forms and phase in radios when applicable.

(d) *Class 3; radar equipment.* (1) Diagnose radio (radar) malfunctions: Provide equipment and material which are satisfactory to perform all functions listed under Class 1 of paragraph (b) (1) of this section.

(2) Maintain, repair, and alter radios (radar), including installation and the replacement of parts:

Provide equipment and material which are satisfactory to perform all functions listed under Class 1 of paragraphs (b) (2) and (c) (2) of this section; also
Metal plate transmission lines, wave guides, and similar equipment, in accordance with appropriate specifications
Pressurize appropriate radar equipment with dry air, nitrogen or other specified gases.

(3) Inspect and test radios: Provide equipment and material which are satisfactory to perform all functions listed under Class 1 of paragraph (b) (3) of this section.

(4) Make frequency checks: Provide equipment and material which are satisfactory to perform all functions listed under Class 1, of paragraph (b) (4) of this section.

(5) Perform such calibrations as are necessary for the proper operation of radios: Provide equipment and material which are satisfactory to perform all functions listed under Class 1 of paragraph (b) (5) of this section.

§ 52.35 *Equipment and materials; instrument rating.* An applicant for an instrument rating shall be equipped, as appropriate to the rating sought, to:

(a) Diagnose malfunctions;

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

(c) Inspect, test, and calibrate.

§ 52.35-1 *Equipment and materials; instrument rating (CAA interpretations which apply to § 52.35)*—(a) *General.* An applicant for all classes of instrument ratings must provide equipment and materials for the competent and efficient performance of the following job functions, in accordance with pertinent specifications and manufacturers' recommendations, within the class of rating applied for. An asterisk (*) indicates that the applicant need not have equipment and material for this function provided he contracts that particular function to a competent outside agency having such equipment and materials.

(b) *Class 1; mechanical instruments.* (1) Diagnose instrument malfunctions:

Equipment must be satisfactory to diagnose malfunctioning of the following instruments:

Rate of climb indicators,
Altimeters,
Air speed indicators,
Vacuum indicators,
Oil pressure gauges,
Fuel pressure gauges,
Hydraulic pressure gauges,
Deicing pressure gauges,
Pitot-static tube,
Direct indicating compasses,
Direct indicating tachometers,
Accelerometer,
Direct reading fuel quantity gauges,
Optical (sextants, drift sights, etc.)*.

(2) Maintain, repair and alter instruments, including installation and the replacement of parts: Equipment and materials must be satisfactory to perform these functions on instruments listed under Class 1 of subparagraph (1) of this paragraph. The function of installation includes fabrication of instrument panels and other installation structural components. The repair station should be equipped to perform this function. However, it may be contracted to a competent outside agency equipped to perform the function.

(3) Inspect, test and calibate instruments. Equipment and materials must be satisfactory to perform these functions on and off the aircraft, when appropriate, on all instruments under Class 1 of subparagraph (1) of this paragraph.

(c) *Class 2; electrical instruments.* (1) Diagnose instrument malfunctions: Equipment must be satisfactory to diagnose malfunctioning of the following instruments:

Tachometers,
Synchroscope,
Electric temperature indicators,
Electric resistance type indicators,
Moving magnet type indicators,
Resistance type fuel indicators,
Warning units (oil-fuel),
Selsyn systems and indicators,
Syncro style systems and indicators,
Remote indicating compasses,
Fuel quantity indicators,
Oil quantity indicators,
Radio indicators,
Ammeters,
Voltmeters.

(2) Maintain, repair and alter instruments, including installation and replacement of parts: Equipment and materials must be satisfactory to perform these functions on instruments listed under Class 2 of paragraph (b) (1) of this section. The function of installation includes fabrication of instrument panels and other installation structural components. The repair station should be equipped to perform this function. However, it may be contracted to a competent outside agency equipped to perform the function.

(3) Inspect, test and calibrate instruments: Equipment and materials must be satisfactory to perform these functions on and off the aircraft, when appropriate, on all instruments under Class 2 of paragraph (b) (1) of this section.

(d) *Class 3; gyroscopic instruments.* (1) Diagnose instrument malfunctions: Equipment must be satisfactory to diagnose malfunctioning of the following instruments:

Turn and bank indicators,
Directional gyros,
Horizon gyros,
Auto pilot control units and components.

(2) Maintain, repair and alter instruments, including installation and replacement of parts: Equipment and materials must be satisfactory to perform these functions on instruments listed under Class 3 of paragraph (b) (1) of this section. The function of installation includes fabrication of instrument panels and other installation structural components. The repair station should be equipped to perform this function. However, it may be contracted to a competent outside agency equipped to perform the function.

(3) Inspect, test and calibrate instruments: Equipment and materials must be satisfactory to perform these functions on and off the aircraft, when appropriate, on all instruments under Class 3 of paragraph (b) (1) of this section.

(e) *Class 4; electronic instruments.* (1) Diagnose instrument malfunctions: Equipment must be satisfactory to diagnose malfunctioning of the following instruments:

Remote reading direction indicators,
Distance measuring equipment,
Other electronic instruments.

(2) Maintain, repair and alter instruments, including installation and replacement of parts: Equipment and materials must be satisfactory to perform these functions on instruments listed under Class 4 of paragraph (b) (1) of this section. The function of installation includes fabrication of instrument panels and other installation structural components. The repair station should be equipped to perform this function. However, it may be contracted to a competent outside agency equipped to perform the function.

(3) Inspect, test and calibrate instruments: Equipment and materials must be satisfactory to perform these functions on and off the aircraft, when appropriate, on all instruments listed under Class 4 of paragraph (b) (1) of this section.

§ 52.36 *Equipment and materials; accessory rating.* An applicant for an accessory rating shall be equipped, as appropriate to the rating sought, to:

(a) Diagnose malfunctions;

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

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

§ 52.36–1 *Equipment and materials; accessory rating (CAA interpretations which apply to § 52.36)*—(a) *General.* An applicant for all classes of accessory ratings must provide equipment and materials for the competent and efficient performance of the following job functions, in accordance with pertinent specifications and the manufacturers' recommendations, within the class of rating applied for:

(b) *Class 1; mechanical accessories.* (1) Diagnose accessory malfunctions;

(2) Maintain, repair and alter accessories, including installation and the replacement of parts;

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

(c) *Class 2; electrical accessories.* (1) Diagnose accessory malfunction;

(2) Maintain, repair and alter accessories, including installation and the replacement of parts;

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

(d) *Class 3; electronic accessories.* (1) Diagnose accessory malfunctions;

(2) Maintain, repair and alter accessories, including installation and the replacement of parts;

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

§ 52.37 *Equipment and materials; limited ratings.* An applicant for a limited rating under any of the ratings and classes specified in § 52.26, or for such specialized services as are not covered under these ratings, shall have such equipment and material to accomplish the functions appropriate to the ratings sought which have been found to be appropriate by the Administrator.

§ 52.37–1 *Equipment and materials; limited ratings (CAA interpretations which apply to § 52.37)*—(a) *General.* When applying for any limited rating the applicant must have equipment and materials to perform any job function under the appropriate rating and class specified in §§ 52.31–1 to 52.36–1, inclusive, or paragraph (b) of this section: *Provided,* That the applicant need not be equipped to perform any job function that is not applicable to the particular make or model article for which he desires a rating, where the applicant shows that such equipment and materials are not required under the recommendations of the manufacturer of the article involved. (See § 52.27–1 for list of appropriate limited ratings.)

EXAMPLE 1: If it were the policy of a particular manufacturer of an all metal aircraft to repair this aircraft by 100 percent replacement of parts, it would not be necessary for an applicant to have such metal forming equipment as brakes, shears, etc.

EXAMPLE 2: An applicant desires a limited rating for the overhaul and repair of landing gears. He would apply under a limited rating for landing gear overhaul. He would then be required to have equipment and materials to perform only those job functions within the class that would be applicable to the overhaul and repair of landing gears as set forth under airframe rating-landing gear systems.

(b) *Specialized services or techniques*—(1) *Magnetic and fluorescent inspection.* Equipment and materials required to perform inspections, using the following techniques or methods:

"Wet" and "dry" magnetic inspection techniques;
Residual and continuous methods;
Inspection of welds, both on and off the aircraft (this refers to portable equipment).

(2) *Emergency equipment overhaul and repair.* Equipment and materials required to perform following functions:

(i) Class 1:

(*a*) Inspection, minor repair and test of inflated equipment and containers;

(*b*) Repacking, remarking, resealing and restocking of life rafts;

(*c*) Weighing CO_2 containers.

(ii) Class 2:

(*a*) All functions under Class 1;

(*b*) Major repairs to all types of inflated equipment;

(*c*) Weighing, refilling and testing of CO_2 fire extinguishers, oxygen containers.

(3) *Rotor blade overhaul and repair.* Equipment, materials, methods and techniques are to be determined on the basis of the manufacturers' recommendations.

(4) *Aircraft fabric work.* Equipment and materials required to perform the following job functions:

Apply protective coatings to structure,
Machine stitch fabric panels,
Perform covering sewing and rib stitching operations,
Apply dope and paint, using temperature and humidity control equipment,
Install patches, grommets, tapes, hooks, etc.,
Refinish aircraft components and entire aircraft.

DOMESTIC REPAIR STATION OPERATING RULES

§ 52.40 *Domestic repair station 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, instrument, radio, or accessory for which it is rated; and

(b) To approve and return to service such airframe, powerplant, propeller, instrument, radio, or accessory after it has undergone maintenance, minor repair, or minor alteration; and

(c) To approve and return to service such airframe, powerplant, propeller, instrument, radio, or accessory after it has undergone a major repair or major alteration: *Provided,* That such major repair or major alteration has been accomplished in accordance with a manual, specification, or other technical data approved by the Administrator.

(d) To return aircraft to service after annual inspection and issue other flight authorizations in a form and manner approved by the Administrator: *Provided,* That this privilege shall apply only to those certificated repair stations holding airframe ratings.

§ 52.41–1 *Scope of authorized major repairs and major alterations (CAA interpretations which apply to § 52.41 (c)).* A repair station may approve and return to service an article to which a major repair or a major alteration has been accomplished only if such repair or alteration has been done in accordance with the manual, specifications, or other technical data approved by the Administrator. Examples of such approved data are manufacturers' service or maintenance manuals, drawings, service bulletins, CAA airworthiness directives, CAA specifications, or any other repair or alteration data previously approved by the Administrator. The repair station may also request approval for repairs and alterations of its own design and, once approved by the Administrator, may continue to exercise the privilege granted in § 52.41 (c). The repair station must determine that any technical data used have been approved by the Administrator.

§ 52.41–2 *Annual inspections and other flight authorizations (CAA policies which apply to § 52.41)*—(a) *General.* A repair station holding an unlimited airframe rating in any of the classes may return an aircraft to service after annual inspection, and issue other flight authorizations. This privilege carries with it certain duties and responsibilities which are supervised by the Administrator through his appropriate Aviation Safety Agent located in the Aviation Safety District Office nearest the repair station. Upon certification, the repair station will receive a supply of official forms, and written instructions for the procedures and methods used in conducting annual inspections and issuing other flight authorization.

§ 52.42 *Limitations of certificate.* A certificated repair station shall not perform any inspection, maintenance, repair, or alteration on any airframe, powerplant, propeller, instrument, radio, or accessory for which such station is not rated, or any such work for which rated when such inspection, 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 this subchapter.

§ 52.44–1 *Standard of performance (CAA interpretations which apply to § 52.44)*—(a) *General.* Standards referred to in § 52.44 may be found in Civil Aeronautics Manual 18. These standards apply to all aircraft, powerplants, propellers, instruments, and accessories undergoing maintenance, repair and alteration by a certificated repair station. Civil Aeronautics Manual 18 refers to manufacturers' recommendations and instructions; therefore, the repair station must maintain in a current condition all manufacturers' service manuals, instructions and service bulletins which pertain to the articles undergoing repair or alteration by the repair station.

(b) *Radio standards.* A repair station holding one or more classes under the radio rating must conform with those sections of CAM 18 applying to electric systems. Materials must conform with the approved specifications pertinent to equipment appropriate to the rating. Test apparatus, shop equipment, performance standards, test methods, alterations, and calibrations must conform to applicable manufacturers' specifications and/or instructions, approved specifications, CAA accepted specifications of the Radio Technical Commission for Aeronautics and, when not otherwise specified, must conform with accepted standards and good practices of the aircraft radio industry. The tolerances established in Part 9 of Title 47, Chapter I (47 CFR Part 9) apply in the performance of radio transmitter frequency checks.

§ 52.45 *Inspection of work performed.* Each airframe, powerplant, propeller, instrument, radio, and accessory which has undergone any maintenance, repair, or alteration shall, prior to being returned to service, be inspected by a qualified inspector. When the nature of a particular maintenance, repair, or alteration operation so warrants, the inspector shall be a person other than the one who accomplishes the operation. The repair station shall certify on the maintenance, repair, and alteration record for such airframe, powerplant, propeller, instrument, radio, or accessory that it is airworthy.

§ 52.45–1 *Inspection of work performed (CAA interpretations which apply to § 52.45)*—(a) *General.* The objective of § 52.45 is to prevent the return to service of an aircraft or component unless the repair station has satisfied itself that the maintenance on the aircraft or component is of good quality and is installed in such a manner so as not to compromise the airworthiness of the article in any manner. This objective also attempts to fix the responsibility for returning aircraft or components to service on the proper individuals, by requiring that the aircraft records be certified that the articles being returned to service are airworthy.

(b) *Qualified inspector.* For the purpose of § 52.45, a qualified inspector is an individual in the employ of the repair station who has demonstrated through past experience that he is familiar with all inspection methods, techniques, and equipment used to determine the quality of airworthiness of the article involved. He must also be proficient in the use of various types of inspection aids, both mechanical and visual, whichever is appropriate to the article undergoing inspection. Experience as an inspector must have been gained as a journeyman.

(c) *Maintenance operations requiring a double inspection.* Any maintenance operation which, if performed improperly, could be critical to the safe flight of an aircraft must be given a double inspection. The nature of the particular operation will be the governing factor in determining whether such operation shall be given a double inspection. A double inspection refers to that type of inspection wherein an article is repaired or altered by one individual and examined by a second individual in order to reduce to a minimum the possibility of error. Of the two individuals involved in a double inspection, only one need be a qualified inspector assigned for that purpose by the repair station. The mechanic accomplishing the particular maintenance operation may perform the first inspection; however, the qualified inspector must perform the second or final inspection. Operations requiring double inspections include, but are not limited to, the following:

(1) Installation of propellers or rotor blades;

(2) Assembly of wing panels and control surfaces;

(3) Rigging and adjustment of flight controls;

(4) Installation of powerplants in airframes;

(5) Final test and calibration of any article used for flight under IFR;

(6) The overhaul or repair of any accessory used in the flight control system of an aircraft.

§ 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 or individuals by whom the work was performed, the name of the individual by whom it was inspected, and the name of the certificated mechanic or certificated repairman directly in charge thereof, if other than the individual performing the work or inspecting it. Such record shall be retained for at least 2 years.

§ 52.47 *Report of defects or unairworthy conditions.* Unless otherwise prescribed by the Administrator, a certificated repair station shall submit to the Administrator an immediate report of all serious defects in, or other recurring unairworthy conditions of, an airframe, power plant, propeller, or any component thereof, on a form and in a manner prescribed by the Administrator.

§ 52.47–1 *Report of defects or unairworthy conditions (CAA rules which apply to § 52.47)*—(a) *General.* The objective of this section is to require and expedite the reporting of facts regarding malfunctions of aircraft, powerplants, propellers, instruments, radio equipment and accessories. These reports are essential in processing unairworthy items so that speedy corrective action may be taken by the manufacturer of the article or the CAA. A repair station shall not withhold any information regarding the defect or malfunctioning of an article. The repair station shall file a report required under paragraphs (b) and (c) of this section on any serious defect or malfunctioning of an article undergoing work at such repair station. In cases where the filing of such reports may result in a situation prejudicial to the interests of the repair station, each case in question shall be reported to the local responsible Aviation Safety Agent, who will rule whether or not a report shall be submitted by the repair station as required in paragraph (b) of this section.

(b) *Report form.* The official form for reporting a defect and malfunction is the Form ACA–1226 (Malfunctioning and Defects Report). In preparing this form, the repair station should completely describe the nature of the defect or malfunction.

(c) *Filing of reports.* The filing of a Form ACA–1226 (Malfunctioning and Defects Report) shall be accomplished within 72 hours after a defect or malfunction has been discovered, unless otherwise provided for in § 52.47–1 (a). If the defect or malfunction could result in an imminent hazard to flight, the repair station shall use the most expeditious method at hand to so inform the local supervising Aviation Safety Agent.

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FOREIGN REPAIR STATION CERTIFICATE REQUIREMENTS

§ 52.50 *Requirements for issuance of foreign repair station certificate.* A certificate with appropriate ratings for a repair station located outside of the United States may be issued only where the Administrator finds 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, excepting §§ 52.22 through 52.24, are met.

§ 52.50–1 *Necessity for certification (CAA interpretations which apply to § 52.50).* The necessity for a U. S. certificated foreign repair station is based upon the need for service of U. S. registered aircraft. This need, potential or actual, will be determined by the inspecting advisor, subject to final evaluation by the Washington office of the CAA.

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

§ 52.51–1 *Scope of work authorized (CAA policies which apply to § 52.51)*—(a) *General.* While foreign and domestic repair stations are issued the same basic ratings and classes, activities of foreign repair stations are limited to specific services and functions within the appropriate ratings and classes. When making application, a foreign repair station should state the specific services or functions for which it desires ratings. If approved, these shall be entered upon the Operating Limitations of the repair sta-

tion. Requests for amendments or revisions to these limitations should be made by the foreign repair station on Form ACA-394, Parts I and/or II, and forwarded through the International Field Office nearest its place of business.

(b) *Examples of limitations.* When applying for a repair station certificate, an applicant may be guided by the following examples:

(1) Overhaul, modification and repair to Douglas Model DC-6 series, their powerplants, propellers, instruments and accessories;

(2) Overhaul, modification and repair to Pratt & Whitney Model 1830, R-2000 and R-3350 series engines, including all accessories;

(3) Sheet metal repairs only to Boeing Model 377.

The above are merely examples, and are not to be construed to mean that ratings are in any way limited to these three cases.

§ 52.52 *Personnel.* An applicant shall have adequate personnel competent to perform, supervise, and inspect the work for which the repair station is rated. An individual employed by a certificated foreign repair station, and who in such employment performs or supervises inspection, maintenance, overhaul, or repair of aircraft, aircraft engines, propellers, or appliances in connection with aircraft of United States registry, shall not be deemed an airman within the meaning of section 1 (6) of the Civil Aeronautics Act of 1938, as amended, with respect to such work performed in connection with his employment by such foreign repair station.

§ 52.52-1 *Personnel (CAA policies which apply to § 52.52)*—(a) *General.* The objective of this section is to require that repair station personnel are qualified to perform, supervise and inspect the work for which the repair station is rated, with due regard for the volume of such work undertaken by the repair station. Supervisory and inspection personnel must be thoroughly familiar with all Civil Air Regulations, Civil Aeronautics Manuals, CAA Airworthiness Directives, and the maintenance and service instructions of the manufacturer of the article involved.

(b) *Personnel qualifications.* Foreign repair station personnel engaged in the supervision or final inspection of maintenance are not required to hold U. S. certificates of competency. Where such personnel do not hold appropriate certificates issued by the U. S. or the country in which the repair station is located, the inspecting advisor will determine the qualification of the repair station's personnel with respect to their ability to meet the objective stated in paragraph (a) of this section. This determination may be made by an oral or practical examination or by any other method chosen by the CAA.

(c) *Language qualification.* It is necessary that personnel of the repair station, responsible for the supervision and final inspection of work processed through the repair station, have the ability to read, write and understand the English language.

FOREIGN REPAIR STATION OPERATING RULES

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

§ 52.61 *Required records and reports.* The holder of a foreign repair station certificate 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 this part.

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.

§ 52.61-1 *Required records and reports (CAA rules which apply to § 52.61)*—(a) *Maintenance records.* A maintenance record of all work performed on U. S. registered aircraft, including major repairs and alterations, shall be

kept by a foreign repair station. The record shall be in sufficient detail to indicate the make, model, identification number, serial number, and a description of work performed. In a case of major repairs and/or alterations, the repair station shall execute Form ACA-337 (Repair and Alteration Form) in duplicate.[5] The original of this form is given to the aircraft owner and the duplicate is forwarded to the Washington office of the CAA through the CAA International Field Office nearest the repair station's place of business. The foreign repair station shall make all maintenance records, on U. S. registered aircraft, available to the inspecting advisor upon his request.

(b) *Malfunctioning and defects reports.* A report of any malfunction or defect of an aircraft, powerplant, propeller, or component thereof, shall be made on a Form ACA-1226 (Malfunctioning and Defects Report). This report shall be filed within 72 hours after the malfunction or defect has been discovered. A supply of these forms will be furnished the foreign repair station by the inspecting advisor. The provisions of this section apply only to U. S. registered aircraft.

[5] In the event major repairs and/or alterations are accomplished on U. S. scheduled flag carrier aircraft, they may be recorded in the logs or other records provided by the carrier for this purpose.

APPENDIX A

EQUIPMENT CHECK LIST

APPENDIX A -- EQUIPMENT CHECK LIST

Introduction

The equipment check list was prepared to provide a convenient list of tools and equipment considered essential for the rating or class.

Listings are not provided for such classes as turbine engines, accessories and radar or the limited ratings, with the exception of the specialized services for magnetic and fluorescent inspection, emergency equipment overhaul and repair, helicopter rotor blade overhaul and repair, and aircraft fabric work.

The list is primarily intended to be a ready reference for both the applicant and the agent in determining if the desired tools and equipment are available without a detailed reference to specific manufacturer's recommendations. If a list has not been prepared for a rating, direct reference to the manufacturer's recommendations will be necessary.

The items listed are not to be construed as of a mandatory nature since it is the applicant's responsibility to choose tools and equipment which are adequate and appropriate to accomplish each job function in a competent and efficient manner. Conversely, possession of all the itemized articles will not necessarily insure approval of an application.

Introduction (Continued)

It may be noted that the ratings follow the same order on the list as in the Manual. Each item of equipment listed is followed by the letter "R", "O" or an asterisk under the appropriate class. The letter "R" indicates that the equipment is recommended for that class and the letter "O" indicates that the item is optional. The use of the asterisk denotes that the equipment must be readily available to the repair station.

REPAIR STATION EQUIPMENT CHECK LIST

Airframe Rating

	CLASS			
1. Steel structural components	1	2	3	4
Welding equipment	R	R	R	R
Welding bench and vise	R	R	R	R
Metal saw	R	R	R	R
Grinder and buffer	R	R	R	R
Jigs and fixtures (as required)	R	R	R	R
Corrosion proofing equipment	R	R	R	R
Anodizing facilities	*	*	*	*
Metal plating facilities	*	*	*	*
Steam cleaning equipment	*	*	*	*
Paint spray equipment	R	R	R	R
Metal lathe	R	R	R	R
Planer	*	*	*	*
Shaper	*	*	*	*
Milling machine	*	*	*	*
Surface grinder	*	*	*	*
Drill press and assorted drills	R	R	R	R
Nibbler	R	R	R	R
Assorted hand tools (special wrenches, reamers, etc.)	R	R	R	R
Abrasive air blasting unit	*	*	*	*
Chemical cleaning tanks	*	*	*	*
Degreasing tank	*	*	*	*
Heat treat oven	*	*	*	*

Steel structural components (Continued)	CLASS 1	2	3	4
Magnetic particle inspection facilities	*	*	*	*
Magnifying glass	R	R	R	R
Fluorescent inspection facilities	*	*	*	*
Compressor and regulator	R	R	R	R
Rockwell test facilities	*	*	*	*
Brinell test facilities	*	*	*	*

2. Wood Structures

Hand saw, plane and chisels	R	R	R	R
Miter saw	R	R		
Table saw	R	R	R	R
Band saw	R	R		
Sander	R	R		
Thickness planer	*	*		
Drill press	R	R		
Brace and bits	R	R	R	R
Riveting equipment	R	R		
Planer - jointer	*	*		
Router	*	*		
Carpenter square	R	R		
Trammels	R	R		
Cabinet maker clamps	R	R		
Sand or shot bags	R	R		
Paint brushes	R	R		

	CLASS			
3. Alloy Skin and Structural Components	1	2	3	4
Smoothing dollies	R	R	R	R
Bucking bars	R	R	R	R
Metal roller and dies	R	R	R	R
Nibbler	R	R	R	R
Metal brake	R	R	R	R
Metal shear	R	R	R	R
Duall	*	*	*	*
Hand drill (powered) and assorted drills	R	R	R	R
Drill press	R	R	R	R
Planishing iron	*	*	*	*
Jigs (as required)	R	R	R	R
Fixtures and clamps	R	R	R	R
Riveting equipment (powered)	R	R	R	R
Clecos or similar fasteners	R	R	R	R
Rivet oven (as required)	R	R	R	R
Cold storage box (as required)	R	R	R	R
Fluorescent inspection equipment	*	*	*	*
4. Fabric Covering				
Assorted needles	R	R	R	R
Sewing machines	*	*	*	*
Fabric table	*	*	*	*
Pinking shears	R	R	R	R

	CLASS			
Fabric Covering (Continued)	1	2	3	4
Clamps and pins	R	R	R	R
Paint brushes	R	R	R	R
Dope spraying equipment	R	R	R	R
Spray booth (size as required)	R	R	R	R
Number and letter templates	R	R	R	R
Plastic and upholstery repair equipment	*	*	*	*
Compressor and regulator	R	R	R	R
Engraving equipment	*	*	*	*
5. Control Systems				
Splicing equipment	R	R	R	R
Swaging equipment	*	*	*	*
Tensiometer	R	R	R	R
Cable stretching and testing unit	*	*	*	*
Bubble protractor	R	R	R	R
Contour boards and templates (as required)	R	R	R	R
Bench arbor press	R	R	R	R
Control balancing jigs (as required)	R	R	R	R
Hinge and bushing repair equipment	R	R	R	R
Drill press (reamers and drills)	R	R	R	R
Lathe	*	*	*	*
6. Landing Gear Systems				
Aircraft jacks and pads	R	R	R	R
Heating torch or oven	R	R	R	R
Arbor press	R	R	R	R

Landing Gear Systems (Continued)	CLASS 1	2	3	4
Bungee jigs and serving tools	R	R	R	R
Special tools (reamers, drills, etc.)	R	R	R	R
Anodizing and plating equipment	*	*	*	*
Drill press	R	R	R	R
Brake drum turning lathe	*	*	*	*
Brake shoe riveting equipment	*	*	*	*
Work stands and fixtures	R	R	R	R
Machine shop equipment (for hydraulic accessory overhaul)	*	*	*	*
Hydraulic pressure test unit	R	R	R	R
Tube fabrication equipment	R	R	R	R
Tire tools	R	R	R	R
Voltohmeter	R	R	R	R
Wire strippers	R	R	R	R
Stakon equipment or equivalent	R	R	R	R
Soldering equipment	R	R	R	R
Electric motor test equipment	R	R	R	R

7. Electric Wiring System

Voltohmeter	R	R	R	R
Soldering equipment	R	R	R	R
Stakon equipment	*	*	*	*
Electrical power supply	R	R	R	R
Conduit fabrication tools	R	R	R	R

	CLASS			
	1	2	3	4
8. Assembly Operations				
Racks and cradles	R	R	R	R
Plumb bobs	R	R	R	R
Level	R	R	R	R
Profile boards	R	R	R	R
Straight edge	R	R	R	R
Combination square and bubble protractor	R	R	R	R
Chain hoist and bridles	R	R	R	R
Engine stands	R	R	R	R
Tensiometer	R	R	R	R
Aircraft jacks and pads	R	R	R	R
Jigs and fixtures (as required)	R	R	R	R
Scales for weighing	R	R	R	R
Work benches	R	R	R	R
Wing stands	R	R	R	R
Wing racks	R	R	R	R
Fuselage cradles	R	R	R	R
Lubrication equipment	R	R	R	R
Auxiliary aircraft power supply	R	R	R	R
Vacuum cleaner	*	*	*	*
Aircraft ground handling gear	*	*	*	*
Steel tape	R	R	R	R

Powerplant Rating

1. Maintain, Repair and Alter Powerplants, Including Replacement of Parts	CLASS 1	2	3
Mechanical cleaning	R	R	
Degreasing and chemical cleaning equipment	R	R	
Heating torch	R	R	
Oil bath	R	R	
Chilling - shrinking facilities	R	R	
Abrasive air blast unit	R	R	
Valve guide mandrels	R	R	
Valve seat insertion mandrels		R	
Arbor press	R	R	
Grinder and buffer	R	R	
Metal plating facilities	*	*	
Taps and dies	R	R	
Reamers and broaches	R	R	
Counterbores	R	R	
Oven (temperature control)	R	R	
Special engine tools	R	R	
Paint spraying equipment	R	R	
Air or electric drill motors	R	R	
Thread chasers	R	R	
Assorted drills	R	R	
Heliocoil equipment	R	R	
Easy outs	R	R	
Forming tools (hand)	*	*	

Maintain, Repair and Alter Powerplants, Including Replacement of Parts (Continued)	CLASS 1	2	3
Riveting equipment (hand)	*	*	
Engraving equipment	*	*	
Metal stamping set	R	R	
Plating facilities	*	*	
2. Inspection of Parts, Using Appropriate Inspection Aids			
Magnetic particle inspection facilities	R	R	
Fluorescent inspection facilities	R	R	
Dial gauge	R	R	
Inside and outside micrometer	R	R	
Magnifying glass	R	R	
Torque wrenches	R	R	
Feeler gauges	R	R	
Height gauges	R	R	
Plug and thread gauges	R	R	
Surface plate	R	R	
V blocks	R	R	
Jigs and fixtures	R	R	
Parallel blocks	R	R	
Telescope gauges	R	R	
Radius gauges	R	R	
Inspection bench and parts racks	R	R	
Valve spring compression gauge or comparison method	R	R	
Combination square	R	R	

	CLASS		
3. Accomplish Routine Machine Work	1	2	3
Honing and lapping equipment	*	*	
Precision grinder	*	*	
Lathe	R	R	
Portable grinder	R	R	
Drill press	R	R	
Milling machine	*	*	
Drills, taps, dies and boring tools	R	R	
Reamers and broaches	R	R	
Buffing and cleaning wheels	R	R	
Valve grinding and lapping equipment	R	R	
Valve seat grinding and lapping equipment	R	R	
4. Performing Assembly Operations			
Valve and ignition timing tools	R	R	
High tension ignition harness tester	R	R	
Ignition harness fabrication tools	R	R	
Fuel and oil line fabrication and test equipment	R	R	
Soldering iron or low pressure torch	R	R	
Propeller installation tools	R	R	
Engine accessory test equipment (bench check)	R	R	
Engine stands	R	R	
Hoisting equipment	R	R	
5. Test Overhauled Powerplants in Compliance with Manufacturers' Recommendations			
Test stand	*	*	
Test clubs	*	*	

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Propeller Rating	CLASS 1	CLASS 2
1. Maintain, Repair and Alter Propellers, Including Installation and Replacement of Parts		
Metal fabrication tools (hand)	R	
Power driven hand drill	R	R
Sander	R	
Drill press	O	O
Planer - jointer	O	
Milling machine		*
Soldering equipment	R	R
Table saw	O	
Band saw	O	
Assorted clamps	R	
Arbor press	R	R
Grinder and buffer	R	R
Prop tools, special	R	R
Paint spray equipment, including compressor and regulator	R	R
Chemical cleaning	O	R
Chain hoist and propeller bridles		R
Metal plating	*	*
Propeller racks and stand	R	R
Portable grinder and buffer	R	R
Propeller lubricating equipment		R
Torque wrenches	R	R
Spring scale for checking torque		R
Blade turning bars		R

	CLASS	
2. Inspect Components, Using Appropriate Inspection Aids	1	2
Surface table	R	R
Propeller mandrels	R	R
Propeller protractor	R	R
Magnetic particle inspection equipment	*	*
Fluorescent inspection equipment	*	*
Magnifying glass	R	R
Etching equipment	R	R
Propeller spline, "go" and "no go" gauges	R	R
Thread and plug gauges	R	R
Height gauge	R	R
Feeler gauges	R	R
Dial indicator	R	R
Inside and outside micrometers	R	R
Combination square	R	
Stencils	R	R
Metal Stamps	R	R
3. Repair or Replace Component Parts		
Voltohmmeter		R
4. Balance Propellers		
Balance stand and mandrels	R	R

	CLASS	
5. Test the Propeller Pitch Changing Mechanisms	1	2
Hydraulic test bench		R
Electrical test bench		R
Propeller governor test - hydraulic		*
Propeller governor test - electric		*

Radio Rating	CLASS 1	2	3
1. Diagnose Radio Malfunctions			
(see 3 below)			
2. Maintain, Repair and Alter Radios, Including Installation and Replacement of Parts			
Metal lathes	*	*	
Mica undercutter	*	*	
Gear and bearing puller	*	*	
Arbor press	*	*	
Dial motor test stand	*	*	
Paint spray equipment	*	*	
Spray booth	*	*	
Oven	*	*	
Metal stamping set	R	R	
Engraving equipment	*	*	
Drawing equipment	*	*	
Drill press	R	R	
Hand tools	R	R	
Work benches and shop furniture	R	R	
Sheet metal tools	*	*	

3. Inspect and Test Radios	CLASS 1	2	3
AC power supply (if applicable)	R	R	
DC power supply (if applicable)	R	R	
Voltmeters	R	R	
Ohmmeters	R	R	
Ammeters	R	R	
Frequency meter	R	R	
Multi test set	R	R	
Megger	R	R	
Signal generators	R	R	
VHF signal generator	R	R	
Audio oscillator	R	R	
Output power meter	R	R	
Tube tester	R	R	
Vacuum tube voltmeter	R	R	
Dummy antenna	R	R	
Standard test antenna	R	R	
Microphone and head set tester	R	R	
Condenser tester	R	R	
Shielded room		R	
VOR test set		R	
Localizer and glide slope test set		R	
Micro ammeter		R	
Oscilloscope		R	

CLASS		
1	2	3

4. Make Frequency Checks

(see above)

5. Perform Such Calibrations as Necessary for the Proper Operation of Radios

(see above)

Instrument Rating	CLASS 1	2	3	4
1. Diagnose Instrument Malfunctions				
(use item 3 below)				
2. Maintain, Repair and Alter Instruments, Including Installation and Replacement of Parts				
Precision drill press	R	R	R	R
Precision lathe	R	R	R	R
Bench arbor press	R	R	R	
Hand lifters	R	R	R	R
Assorted special wrenches and adapters	R	R	R	R
Assorted special screw drivers	R	R	R	R
Punches	R	R	R	R
Broaches	R	R	R	R
Bell jars	R	R		
Staking set	R	R	R	R
Machinist vise	R	R	R	R
Bench vise	R	R	R	R
Soldering iron	R	R	R	R
Surface plate	R	R	R	R
Inside and outside micrometer	R	R	R	R
Surface gauge	R	R	R	R
Steel scale and combination square set	R	R	R	R
Dividers	R	R	R	R
Dial indicator	R	R	R	R
Assorted files, taps, drills, dies and reamers	R	R	R	R

Maintain, Repair and Alter Instruments, etc. (Continued)	CLASS 1	2	3	4
Storage cabinets	R	R	R	R
Cleaning unit	R	R	R	R
Stools	R	R	R	R
Engraving equipment	*	*	*	*
Paint spraying equipment including compressor and regulator	R	R	R	R
Spray booth	R	R	R	R
Grinder	R	R	R	R
Magnet keeper	R	R	R	R
Appropriate fixtures and assembly stands	R	R	R	R
Work benches	R	R	R	R
Lubricants	R	R	R	R
Liquids and supplies (naphtha, compass liquid, sealing compound, pith wood)	R	R	R	R
3. Inspect, Test and Calibrate Instruments				
Water and mercury manometers	R		R	
Rubber tubing	R	R	R	R
Vacuum and air pressure supply source	R	R	R	R
Pressure chamber	R	R		R
Dead weight tester	R	R		
Calibration vibrator	R	R	R	R
Temperature chamber	R	R		
Barometer, mercurial	R	R		R
Stroboscope	R	R	R	R

Inspect, Test and Calibrate Instruments (Continued)	CLASS 1	2	3	4
Tachometer test stand and variable speed motor	R	R		
Wheatstone bridge		R		R
Magnet charger	R	R	R	R
Demagnetizer	R	R	R	R
Pelorus or compass rose	R			
Thermometers, laboratory type	R	R	R	R
Stop watch	R	R	R	R
Tilting compass turntable	R	R	R	R
Decade box (resistance, capacitance)		R	R	R
Millivoltmeter - DC		R	R	R
Autosyn test stand and power supply		R	R	R
Selsyn test stand and power supply		R	R	R
Magnesyn test stand and power supply		R	R	R
High potential tester		R	R	R
Voltohmeter tester		R	R	R
Shunts		R	R	R
Null balance potentiometer			R	R
Milliammeter AC and DC tester		R	R	R
Vacuum tube voltmeter				R
Battery charger		*	*	*
Voltmeters		R	R	R
Bank and turn table			R	
Gyro rotor balance stand			*	*

Inspect, Test and Calibrate Instruments (Continued)	CLASS 1	2	3	4
Gyro fixtures			R	R
Air-flow meter			R	
Scorsby test table			R	R
Air filter and moisture trap			R	R
Oscilloscope				R
Signal generator				R
Frequency meter				R
Tube tester				R
Compass card balance fixture	R			
Helmholtz coil				R

Limited Rating

Magnetic and Fluorescent Inspection

Magnetizer including accessories and fixtures

Means for applying indicating medium

Demagnetizer

Manufacturers' specifications

Application facilities

Rinse and dry facilities

Developing facilities - dry method

Developing facilities - wet method

Inspection facilities

Specifications

Limited Rating

Emergency Equipment - Overhaul and Repair	CLASS 1	CLASS 2
Life Raft		
Manometer	R	R
Air compressor, inflator	R	R
Vacuum pump, deflator	R	R
Repair Tools		
Shears, blunt 6 inch	R	R
Roller, steel vulcanizing, 1/8 inch wheel	R	R
Roller, steel vulcanizing, 1-1/2 inch wheel	R	R
Brush, wire (scratch) shoe handle	R	R
Knife, (shoe) blade 3/4 inch wide by 3-1/4 inches long	R	R
Stencil set, 2 inch letter and number	R	R
Scale, 200 lb. capacity	R	R
Machine, sewing, heavy duty	R	R
Machine, sewing, regular	R	R
Machine, eyelet	R	R
Machine, grommet (spur)	R	R
Machine, lift dot (fastener)	R	R
Machine, dot fastener	R	R
Punch, hand (leather)		R
Punch, hand 1/2 inch		R
Dolly, lead, hole punch base		R

Emergency Equipment - Overhaul and Repair (Continued)	CLASS 1	CLASS 2
Life Vest		
Inflator	R	R
Pliers, 6 inch, combination slip joint	R	R
Tool, valve core	R	R
CO_2 Cylinders (Fire Extinguisher - Life Raft - Life Vest)		
Tank, hydrostatic testing	*	*
Recharging	*	*
Scale, balance, 200 lb. capacity	R	R
Scale, balance, 6 ounce capacity	R	R
Oxygen		
Regulator, recharging. Type, Harris Calorific Multistage Model 92M or equivalent		R
Recharge assembly, 48 inch, low pressure, 03K. No. 5500-717480		R
Recharge assembly, high pressure, Scott No. 5020		R
Regulator flow test, flowmeter L.P.M. - Draft gauge, flow control valve		R
Meter, flow check, ground - Sperti type		R
Clamp pliers, delivery tube		R
Leak detector		R
Microphone insertion tool	R	R
Sterilizer, mask, 3 gal. capacity, porcelain		R
Sealer iron, electric, cellophane packaging	R	R
Seal press	R	R

Emergency Equipment - Overhaul and Repair (Continued)

	CLASS 1	CLASS 2
Gibson Girl Radio		
Screen room, testing		*
Antenna, A-98 Phantom		*
Receiver, radio, short wave		*
Repairs, radio		*
Minimum stock of: CO_2 cylinders for vests and rafts	R	R
Lead seals	R	R
Canned drinking water and other replacements for raft equipment	R	R
Patching cement and material	R	R

Limited Rating

Helicopter Rotor Blade Repair

1. Basic equipment for Class 1 Propeller Rating will be satisfactory with the addition of:

   Planer-jointer

   Drill press and drills

   Milling machine *

   Dimpling dies, reamers and countersinks, 4 ft. straight edge

   Gluing facilities and presses

   Portable belt sander

   Portable router

   Wood-working hand tools

   Cold box

   Metal stamps

   Doping facilities

2. Specialized Equipment:

   a. Facilities for gluing and bonding operations which are in accordance with manufacturers' recommendations or the equivalent.

   b. Equipment and fixtures for fabrication and protection of stainless steel leading edge cap strips and retention plates.

Helicopter Rotor Blade Repair
(Continued)

3. Inspection:

Static balance stands

Aerodynamic balance stands *

Templates

Test equipment for testing glue joint samples*

4. Technical Data:

Manufacturers' specifications

Manufacturers' drawings

Manufacturers' erection and maintenance manuals

Manufacturers' repair manual

Manufacturers' parts catalogues

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Limited Rating

Aircraft Fabric Work

Assorted needles

Sewing machine

Fabric table

Pinking shears

Clamps and pins

Paint brushes

Dope spraying equipment

Spray booth (size as required)

Number and letter templates

Plastic and upholstery equipment

Compressor and regulator

APPENDIX B

FORMS

Form Approved - Budget Bureau No. 41-R071.5

Form ACA-394 (4-52)

U.S. DEPARTMENT OF COMMERCE - CIVIL AERONAUTICS ADMINISTRATION

APPLICATION FOR REPAIR STATION CERTIFICATE AND RATING - PART I

(See Civil Aeronautics Manual 52 for Instructions and Procedure for Applying)

1. RATING AND CLASS

Application is hereby made for a Repair Station Certificate and the Rating(s) indicated below. *(Check rating(s) and class being applied for)*

a.	X	Airframe	X	Class I		Class II	X	Class III		Class IV
b.	X	Powerplant	X	Class I		Class II		Class III		
c.	X	Propeller	X	Class I	X	Class II				
d.		Radio		Class I		Class II		Class III		
e.		Instrument		Class I		Class II		Class III		Class IV
f.		Accessory		Class I		Class II		Class III		
g.	X	Limited *(See Attachment Number I for Proposed Limitations)*								

2. REPAIR STATION NAME, ADDRESS AND LOCATION

a. Name of Repair Station *(Official name under which repair station will conduct business)*

United Aircraft Repair

b. Repair Station Location *(If located on airport, give name of airport)*

Centerville Municipal Airport
Hangar 16

c. Official Mailing Address *(Give complete address - number and street, city, postal zone, state)*

Post Office Box #649
Centerville 1, Kansas

d. Location of Administrative Offices *(Give complete address only if location is not same as "b" above)*

1524 Main Street
Centerville 1, Kansas

3. TYPE OF APPLICATION (Original Application, Exchange of Certificate)

(Check and complete appropriate spaces)

a. [X] Original Application (Station not currently certificated under CAR 52)

b. [ ] Domestic Repair Station Certificate. [ ] Foreign Repair Station Certificate.

c. [ ] Exchange of Certificate (Station currently certificated under CAR 52)

Current Certificate Number _____ Rating(s) Approved _____ *(A, B, C, D, E, or F)*

4. REPAIR STATION OWNER

(Check appropriate block and complete)

a. [ ] Individual *(List name of owner)*

b. [X] Partnership *(List names of partners)*

Ralph P. Sloan Howard J. Finch

c. [ ] Corporation *(List name of state under which incorporated and date)*

5. APPLICANT'S CERTIFICATION

I hereby certify that I have been authorized by the repair station identified in Item 2 above to make this application and that the information furnished herewith as a part of this application is true and correct to the best of my knowledge.

Ralph P. Sloan

Ralph P. Sloan
Authorized Signature

General Manager
Title

June 15, 1952
Date of Application

6. ATTACHMENTS

The following are submitted as part of this application:

- [X] I. Proposed Limitations for Limited Rating
- [X] II. Form ACA-394 Part II and attachments.
- [X] III. Repair Station's Inspection Manual (Domestic)
- [ ] IV. Brochure (Submitted by foreign applicant)
- [X] V. Other Equipment List
  (2) Repairman Applications

Comm-DC 52948

Form ACA-394 (Part I) (4-52)

Example 1

In connection with my application for a Class II propeller rating, I desire to be approved for all models of Beech, Hartzell and Koppers propellers that are not included in the Class I rating.

In connection with my application for a limited rating, I desire to be approved for Douglas DC-3 Series airframes, and permitted to exercise all the privileges set forth in CAR 52.41 as applicable to Douglas DC-3 Series airframes.

Ralph L. Sloan

Example 1

Form Approved; Budget Bureau No. 41-R071.5

Form ACA-394
(4-52)

U.S. DEPARTMENT OF COMMERCE - CIVIL AERONAUTICS ADMINISTRATION

APPLICATION FOR REPAIR STATION CERTIFICATE AND/OR RATING - PART II

(See Civil Aeronautics Manual 52 for Instructions and Procedures for Applying)

7. SUPPLEMENTAL INFORMATION

Name of Repair Station	Date of this Application
United Aircraft Repair	June 15, 1952

(Check appropriate item)

a. [X] This form is submitted as Part II of an original repair station application

b. [ ] This form is submitted to modify repair station certificate no.

8. SUPERVISORY AND INSPECTION PERSONNEL* *(Ref. CAM 52.24-1) (Attach additional forms if necessary)*

a. List Name(s) of Officials Responsible for Station Management and Their Title

Ralph P. Sloan	General Manager
Howard J. Finch	Shop Supervisor

b. List Name of Chief Inspector*: James S. Welsh — Certificate Number & Rating, if any: 123456 "A&E"

c.* List Names of Inspector(s)*	Department	Certificate Number & Rating, if any
John S. Houseman	Final Assembly	43287 "A&E"
Sam J. Frankhold	Engine Shop	37654 "E"
James J. Cooper	Propeller Shop	(Application for Repairman Certificate attached)

d. List Names of Technical Supervisors*	Department	Certificate Number & Rating, if any
Donald K. Meeker	Metal Shop	56432 "A"
Sam J. Frankhold	Engine Shop	37654 "E"
Harry K. Farzie	Propeller Shop	(Application for Repairman Certificate attached)

9. DESIGNATED MAINTENANCE REPRESENTATIVE*, (DMR) (APPLICANT'S RECOMMENDEE(S))

a. The following named person(s) are considered by the applicant to meet the requirements of CAR 52.22(d) and CAM 52.22-1(f) for appointment as a DMR.

James S. Welsh
John S. Houseman

* Attach employment summary for each person listed under items 8 b,c,d, and 9. See CAM 52.24-1(a) for information to be furnished. Summary shall be separate for each person and identified by name and type of position i.e., Chief, Inspector, Technical Supervisor, DMR Recommendee.

Comm-DC 52948 (Over) Form ACA-394 (Part II) (4-52)

Example 1

10. AUTHORIZED SIGNATURES - If this application is approved the following persons are authorized to sign official documents, log books, airworthiness records, etc. on behalf of the repair station. (Limitations, if any, will be set forth in inspection manual, see CAM 52.25-1).

a. Official Name and Signature of Designated Maintenance Representative(s)

Type Name as Signed	Official Signature *(Sign with ink)*
James S. Welsh	James S. Welsh
John S. Houseman	John S. Houseman

b. Official Name and Signature of Chief Inspector

Type Name as Signed	Official Signature *(Sign with ink)*
James S. Welsh	James S. Welsh

c. Other Authorized Signatures

Type Name as Signed	Official Signature *(Sign with ink)*
Ralph P. Sloan	Ralph P. Sloan
Howard J. Finch	Howard J. Finch

11. LIST OF MAINTENANCE FUNCTIONS CONTRACTED TO OUTSIDE AGENCIES *(See CAM 52 for eligible functions)*

Metal plating and anodizing
Complex machine operations
Heat treatment
Fabricate wood spars
Precision grinding and honing

12. NOTIFICATION OF PERSONNEL CHANGES OR INTENT TO CHANGE REPAIR STATION LOCATION

a. Personnel Changes (This space is to be used to notify the CAA of any additions or deletions to items 8, 9 or 10. Indicate in space below name of employee to be dropped and effective date. List additions under appropriate items and attach the employment summary as required by CAM 52.24-1(a).)

b. Request for approval to change Repair Station Location

(1) In compliance with CAM 52.10-1, this is to serve as notice that we intend to move our repair station activities to the following location:

(2) We expect to move beginning *(date)*	(3) We will be ready for reinspection *(date)*

13. APPLICANT'S SIGNATURE *(Omit when submitted as part of an original application)*

Authorized Signature	Title

Comm-DC 52948 Form ACA-394 Part II (4-52)

Example 1

APPENDIX C

DIRECTORY OF REGIONAL OFFICES

DIRECTORY OF REGIONAL OFFICES
CIVIL AERONAUTICS ADMINISTRATION

REGION 1. Regional Administrator, CAA,
Federal Building
N. Y. International Airport, Jamaica, N.Y.

Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Delaware, West Virginia, Maryland, Virginia, District of Columbia

REGION 2. Regional Administrator, CAA,
50 Seventh St., N.E., Atlanta, Ga.

North Carolina, South Carolina, Tennessee, Georgia, Florida, Alabama, Mississippi

REGION 3. Regional Administrator, CAA,
185 N. Wabash Ave., Chicago, Illinois

Ohio, Indiana, Michigan, Kentucky, Illinois, Wisconsin, Minnesota, North Dakota

REGION 4. Regional Administrator, CAA,
P. O. Box 1689, Ft. Worth 1, Texas

New Mexico, Texas, Arkansas, Louisiana, Oklahoma

REGION 5. Regional Administrator, CAA,
City Hall Bldg., Kansas City 6, Missouri

Colorado, Iowa, Kansas, Missouri, Nebraska, South Dakota, Wyoming

REGION 6. Regional Administrator, CAA,
5651 W. Manchester Ave., Los Angeles, 45, Calif.

California, Nevada, Utah, Arizona

REGION 7. Regional Administrator, CAA,
P. O. Box 3224, Seattle 14, Wash.

Montana, Oregon, Washington, Idaho

REGION 8. Regional Administrator, CAA,
P. O. Box 440, Anchorage, Alaska

REGION 9. Regional Administrator, CAA,
P. O. Box 4009, Honolulu 12, T. H.

APPENDIX D

ADVERTISING REQUIREMENTS

ADVERTISING REQUIREMENTS

Minimum advertising requirements of CAM 52.11-3 call for the repair station to stipulate, on all advertising media, the work for which it is rated. This is a requirement only when the repair station indicates that it is a certificated or approved repair station.

The following examples show how this requirement may be complied with:

RATINGS	MINIMUM ADVERTISING
Air Frame - All Classes	Air Frame Rating - Class 1 (2, 3 or 4)
Power Plant " "	Power Plant Rating - Class 1 (2 or 3)
Propeller " "	Propeller Rating - Class 1 (or 2)
Instrument " "	Instrument Rating - Class 1 (2, 3 or 4)
Radio " "	Radio Rating - Class 1 (2 or 3)
Accessory " "	Accessory Rating - Class 1 (2 or 3)

LIMITED RATINGS *

Air Frame of a Particular Make and Model
Powerplant " " " " " "
Instrument " " " " " "
Radio " " " " " "
Accessories " " " " "
Landing Gear Component Overhaul
Float Overhaul, by Make
Magnetic and Fluorescent Inspection
Emergency Equipment Overhaul
Rotor Blade Overhaul, by Make and Model
Aircraft Fabric Work

* All repair stations must use the words "Limited Rating" if so rated. These stations may, at their option, amplify the words "Limited Rating" by adding the specific articles for which they are rated, and which are spelled out in their operations specifications, e.g.,:

"Limited Rating - Carburetors."
"Limited Rating - Edo Floats - All Models."
"Limited Rating - Kollsman Instruments - All Models."