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Civil Aeronautics Manual 24

Mechanic and Repairman Certificates

November 1953

U. S. DEPARTMENT OF COMMERCE

Sinclair Weeks, Secretary

CIVIL AERONAUTICS ADMINISTRATION

F. B. Lee, Administrator

Mechanic and Repairman Certificates

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Civil Aeronautics Manual 24

For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.
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Introductory Note

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 24 of the regulations of the Civil Aeronautics Board, adopted March 31, 1952, which became effective June 15, 1952.

CAA rules are issued pursuant to authority conferred upon the Administrator in the Civil Air Regulations. Such rules are mandatory and must be complied with.

CAA interpretations define or explain words and phrases of the Civil Air Regulations. Such interpretations are for the guidance of the public and will be followed by the administration in determining compliance with the regulations.

CAA policies provide recommended methods of complying with the Civil Air Regulations and are issued for the guidance of the public.

When Part 24 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. Text of the preamble, which fittingly applies to this manual, is as follows:

> Currently effective Part 24 establishes requirements for the certification and rating of aircraft mechanics and aircraft engine mechanics. This revision of Part 24 establishes certain new requirements for the issuance of mechanic certificates and ratings, delineates the privileges of such certificates, and establishes basic operating rules for the holders thereof. It also establishes a new classification of airman to be known as a repairman and provides for certification as such.
>
> Mechanic certificates are to be issued with airframe and powerplant ratings only, and the standards prescribed for their issuance are similar to the current aircraft and engine ratings. Each applicant must take a practical examination appropriate to the rating sought. It is intended that this examination shall be designed to permit an applicant to demonstrate that he possesses a well-rounded, basic understanding of the work which the rating sought authorizes him to perform. All examinations serving to qualify an individual for a mechanic certificate shall be conducted by a representative of the Administrator to make certain that all applicants meet the same general standards.
>
> Under the terms of this revision the airframe and powerplant mechanic shall have all of the privileges of the present aircraft and aircraft engine mechanic. In addition, an airframe mechanic is privileged to return airframes and their components to service after minor repair or minor alteration; a powerplant mechanic is privileged to return powerplants and propellers and their components to service after minor repair or minor alteration. In order to assure that an applicant who is not a graduate of an approved school is properly qualified to discharge his duties and responsibilities under the terms of his certificate, the experience require-

ments have been increased from 12 to 18 months for either an airframe or powerplant rating, and these requirements provide that an applicant desiring both ratings must show at least 30 months of concurrent experience. It should be noted that current holders of mechanic certificates are deemed to have met these requirements.

The regulations in this revision also specify the recent experience requirements which must be met by each certificated mechanic before he is considered qualified to exercise the privileges of his certificate and ratings. These requirements recognize the fact that some holders of mechanic certificates exercise the privileges of such certificates in a supervisory manner only, and that recent experience acquired in this manner is considered satisfactory.

A classification of airman to be called a "repairman" has been established in this part. For the performance of work on airframes or engines at a repair station, a properly certificated mechanic is sufficient. However, a repairman is required at a repair station which is authorized to perform work on instruments or to perform major alterations and repairs on propellers. The necessity for this is established by the Civil Aeronautics Act of 1938, as amended, in that an approved rated airman must be in charge of the inspection, maintenance, overhaul, or repair of United States aircraft or their components. An airframe or powerplant mechanic as such is not authorized to perform instrument or major propeller work, unless he is also employed and certificated as a repairman.

A repairman will be employed and certificated for a particular job, and he is not authorized to exercise his privileges except while carrying out his duties as required by that job. As it is considered that in most cases no one below the level of a shop foreman or department head need be certificated, it is anticipated that few repairmen will be required by any one repair station.

Appropriately certificated air carriers, by the terms of the revision of Part 18, are no longer required to obtain a repair station certificate to perform their own maintenance and overhaul. Therefore, in order to assure that such air carriers have properly rated personnel in charge of their instrument and propeller shops, provision has been made for the recommendation and certification of repairmen in the same manner as by repair stations.

A factory mechanic rating has been omitted from this revision of Part 24 since revised Part 18 now permits a manufacturer to rebuild or alter products for which he holds a type or production certificate or which are manufactured by him in accordance with appropriate specifications approved by the Administrator.

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 24 of the Civil Air Regulations (14 CFR, Part 24, 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.

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Mechanic and Repairman Certificates

Applicability and Definitions

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

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

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

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

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

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

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

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

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

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

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

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

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

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

"(13) *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.

"(14) *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.

"(15) *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.

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

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

"(18) *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).

"(19) *Preventive maintenance.* Preventive maintenance shall mean simple or minor preservation operations and the replacement of small standard parts not involving complex assembly operations.[1]

"(20) *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.

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

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

SUBPART A—Mechanic Certificates

Certification Rules

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

24.5-1 *Application for mechanic certification (CAA rules which apply to section 24.5).*

(a) Application for the written portion of the examinations required for a mechanic certificate shall be made on Form ACA-983, after the applicant has established his eligibility in accordance with the General Certificate Requirements of this part.

(b) The applicant may apply for the oral and practical portions of the examinations required for a mechanic certificate after he has successfully accomplished the written examinations. Application for the oral and practical examinations shall be made on Form ACA-363.[1]

"24.6 *Issuance.*

"(a) Mechanic certificates and ratings shall be issued by the Administrator to applicants who meet the requirements of this part.

"(b) Pending a review of an application and supporting documents by the Administrator and the issuance of a mechanic certificate and ratings, an authorized representative of the Administrator may, subject to such terms and conditions as the Administrator may specify, issue a temporary mechanic certificate with

[1] Application forms for mechanic certification will be furnished by the Administrator through the CAA Aviation Safety District Offices or Aviation Safety Agents

appropriate ratings to an applicant, if the representative determines that the applicant has met the requirements of this part."

24.6–1 *Issuance. (CAA rules which apply to section 24.6 (b)).* **Pending a review of the application Form ACA–363 and supporting documents as outlined in section 24.21–1, the applicant will be issued a temporary airman certificate Form ACA–1710–T, by the Aviation Safety Agent or an authorized representative of the Administrator, provided that all of the requirements of this part have been met.**

"24.7 *Duration.*

"(a) A mechanic certificate and ratings shall remain in effect until surrendered, suspended, revoked, or otherwise terminated by order of the Board, except that a certificate issued to an individual other than a United States citizen shall remain in effect for only one year: *Provided,* That upon application to the Administrator and upon showing continued compliance with the other requirements of this part, a mechanic certificate may be reissued to an individual other than a United States citizen for additional periods of one year without further demonstration of technical competence. After revocation, and upon request of the Administrator after suspension or termination, the certificate shall be returned to the Administrator.

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

24.7–1 *Reissuance to other than United States citizen (CAA interpretations which apply to section 24.7 (a)).* The holder of a mechanic certificate issued to other than a United States citizen may be reissued a certificate by presenting a properly executed application Form ACA–363 to an Aviation Safety Agent or other authorized representative of the Administrator: *Provided,* That he meets the recent experience and citizenship requirements of Civil Air Regulations. The applicant, to show proof of recent experience, may either (1) obtain a statement certifying thereto on the application form by an Aviation Safety Agent or other authorized representative of the Administrator, or (2) furnish satisfactory proof such as a letter from his employer or immediate superior, employment records, etc., that he meets the requirements of section 24.51 of this part.

"24.8 *Outstanding mechanic certificates and ratings.* After the effective date of this part, a person holding a valid mechanic certificate with an aircraft mechanic rating shall be deemed to hold a valid mechanic certificate with an airframe rating, a person holding a valid mechanic certificate with an aircraft engine mechanic rating shall be deemed to hold a valid mechanic certificate with a powerplant rating, and a person holding a valid mechanic certificate with aircraft mechanic and aircraft engine mechanic ratings shall be deemed to hold a valid mechanic certificate with both airframe and powerplant ratings. The Administrator may, in such form and manner as he may establish, require the exchange of outstanding certificates for certificates issued in accordance with the provisions of this part."

24.8–1 *Outstanding mechanic certificates (CAA interpretations which apply to section 24.8).* Mechanic certificates with aircraft and/or aircraft engine ratings issued prior to June 15, 1952, and valid on that date, are considered equivalent to mechanic certificates that were issued subsequent to June 15, 1952, with airframe and/or powerplant ratings.

24.8–2 *Exchange of outstanding mechanic certificates (CAA policies which apply to section 24.8).* Mechanic certificates with either aircraft or aircraft engine ratings, or both, issued *prior* to June 15, 1952 and *valid* on that date, may be exchanged for certificates with appropriate airframe and/or powerplant ratings, upon application, on Form ACA–363, to a CAA Aviation Safety District Office or an Aviation Safety Agent.

"24.9 *Display.* When issued to the individual, the mechanic certificate with appropriate ratings shall be kept readily available by the mechanic at all times while exercising the privileges of such certificate, and shall be available for inspection by any authorized representative of the Administrator or the Board, or by any authorized State or local law enforcement officer."

24.9–1 *Readily available (CAA interpretations which apply to section 24.9).* A mechanic must keep his certificate within the immediate area where he normally exercises the privileges conferred on him by the certificate.

"24.10 *Identification.* The holder of a

certificate issued under the provisions of this subpart shall not, except while engaged in operations conducted by a scheduled air carrier, exercise the privileges conferred by the certificate unless he has readily available a current airman identification card or other identification card acceptable to the Administrator, which duly describes him. The airman identification card may be obtained from the Administrator who shall prescribe its form and the manner of applying for it."

24.10–1 *Identification cards acceptable to the Administrator (CAA rules which apply to section 24.10).* Identification cards which are acceptable in lieu of Airman Identification Card, Form ACA–2135, as meeting the requirements of section 24.10 are as follows:

(a) Aircrewman Identification Card, Form ACA–2116.1, issued by CAA.

(b) Crew Member Certificate, Form ACA–2116.1, issued by CAA.

NOTE: This certificate is a current revision of the Aircrewman Identification Card.

(c) Current identification cards issued to members on active duty or on reserve status by:

1. U. S. Army.
2. U. S. Navy.
3. U. S. Air Force.
4. U. S. Marine Corps.
5. U. S. Coast Guard.
6. U. S. Merchant Marine.
7. National Guard.
8. Civil Air Patrol.

NOTE: While these cards are acceptable on the same terms and conditions as the airman identification card for meeting the airman identification requirements, they are not acceptable documentary evidence of place and date of birth, or citizenship, for the issuance of the airman identification card.

24.10–2 *Application (CAA rules which apply to section 24.10).* An applicant for an airman identification card shall comply with the following procedure:

(a) *Application.* The applicant shall apply in person to an Aviation Safety Agent, or an Aviation Safety District Office.

(b) *Form.* Application for Airman Identification Card, Form ACA–2134, shall be completed in single copy, typed or printed in ink, and contain precise information on each item.

(c) *Proof of identity.* The applicant shall furnish proof that he is the person he claims to be. The agent may exercise his discretion in the method by which he identifies the applicant. The following generally acceptable items are offered as a guide:

1. Airman Identification Card, Form ACA–935, issued by the CAA to the applicant during World War II.
2. Agent is personally acquainted with the applicant.
3. Applicant is identified by a personal acquaintance of the agent.
4. Combinations of identification cards and licenses held by the applicant.
5. Comparison of the applicant's signature with that on other cards and licenses held by him.

(d) *Proof of place and date of birth.* The applicant shall furnish satisfactory documentary evidence of the place and date of birth, which shall consist of one or more of the following:

1. Airman Identification Card, Form ACA–935, issued by CAA during World War II. If he held this card and lost it, he may write to CAA, Airman Records Branch, Washington 25, D. C., and obtain confirmation that it was issued to him and the information it contained.
2. Birth certificate. When the applicant's birth certificate does not contain the exact name now used by him, he shall explain the difference on the application form.
3. Baptismal record, if it contains the full name and place and date of birth.
4. Naturalization papers, if place and date of birth are shown.
5. Passport, expired or current.
6. Aircrewman Identification Card, or Crew Member Certificate, Form ACA–2116.1.
7. Affidavit from attending physician, either parent, brother, sister, or other relative.
8. Statement from any State or Federal Government agency which has the applicant's birth certification on file.
9. Statement from any military, State, municipal, local, or Federal Government agency which has established, by investigation or otherwise, the applicant's place and date of birth.

Applicants who cannot furnish any of the documents listed in (1) through (9) may pre-

sent affidavits from acquaintances who have good reason to believe the applicant's place and date of birth are as claimed by him.

NOTE: Military identification cards, service records, discharge papers, drivers' licenses, and the like are not acceptable documentary evidence of place and date of birth. While these items, including the identification cards which are acceptable in lieu of the airman identification card, may be used to aid in the identification of the applicant, they are not acceptable documentary evidence because they do not contain information on the nature of proof which may have been required for their issuance. CAA desires to have documentary evidence on file for all airman identification cards issued.

(e) *Evidence of citizenship.* The applicant shall present documentary evidence of his citizenship. There are no citizenship requirements for the issuance of an airman identification card other than furnishing evidence of the citizenship claimed. This evidence may consist of one or more of the following:

1. Any item listed in (d) above, if citizenship is claimed in the country of birth.
2. Naturalization papers.
3. Currently valid passport.
4. Statement from an appropriate official of a foreign government that the applicant is a citizen of that country.
5. Civil Aeronautics Board waiver of citizenship requirements for the issuance of an airman certificate to stateless or other persons.
6. Certified statements from persons, courts, or agencies in authority on cases of derivative citizenship, uncompleted naturalization, or other complex citizenship status. Such statements must contain information on the current status of the applicant's citizenship.

(f) *Photographs.* The applicant shall furnish photographs which conform to the following specifications:

1. Two photographs taken from the same negative.
2. One-inch square, full face, head only.
3. Taken within the past twelve months.
4. No specified background.
5. Readily recognizable as photographs of applicant.

(g) *Fingerprints.* The applicant shall be fingerprinted by an Aviation Safety Agent or other CAA employee authorized by the agent.

(h) *Reissuance of lost card.* An applicant who has lost his Airman Identification Card, Form ACA–2135, may obtain another by:

1. Writing to the Civil Aeronautics Administration, Airman Records Branch, W–253, Washington 25, D. C., explaining the circumstances of the loss, and requesting a letter verifying that such card had been issued, and
2. Presenting the letter from the Airman Records Branch to an Aviation Safety Agent who will accept it as meeting all of the documentary evidence requirements, and
3. Furnishing two photographs as required for original issuance.

24.10–3 *Readily available (CAA interpretations which apply to section 24.10).* An airman certificated under Subpart A of CAR 24 who is required to hold an identification card must keep his card within the immediate area where he normally exercises the privileges conferred on him by the certificate.

"24.11 *Change of address.* Within 30 days after any change in the permanent mailing address of a holder of a mechanic certificate, the holder shall notify the Administrator in writing of such change. Such notice shall be mailed to the Administrator of Civil Aeronautics, Attention Airman Records Branch, Washington 25, D. C."

24.11–1 *Change of address (CAA policies which apply to section 24.11).* The notification of change of address should include the following information: Full name, new address, old address, and certificate number.

General Certificate Requirements

"24.15 *Citizenship.* An applicant for a mechanic certificate shall be:

(a) A citizen of the United States or an individual who has been admitted to the United States for permanent residence, or

(b) A citizen of any other country whose government grants or has undertaken to grant to citizens of the United States mechanic privileges and employment rights equivalent to those which such government grants to its own citizens, or

(c) A citizen of any country or a person without nationality who:

(1) is in the employ of a United States air carrier; or

(2) is in the employ of a holder of an air agency certificate issued pursuant to the Civil Air Regulations; or

(3) does not meet the requirements of subparagraphs (1) or (2) but will, in the opinion of the Administrator, perform duties under his certificate which will benefit the operation of United States aircraft.

***Provided,* That the holder of a certificate issued under the provisions of this paragraph (c) shall not exercise within the United States the privileges conferred by the certificate."**

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

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

24.17–1. *Education (CAA interpretations which apply to section 24.17).* Certificates of persons employed by United States air carriers outside of the continental United States who are excepted from the education requirements of section 24.17 will be appropriately endorsed as follows: "Valid Only Outside the U. S."

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

24.18–1 *Examinations and tests (CAA policies which apply to section 24.18).*

(a) The written examinations will be conducted at CAA district offices located throughout the United States or by Aviation Safety Agents on scheduled itineraries. An applicant may obtain information relative to the dates and places of the scheduled itineraries by consulting the local airport bulletin board or by addressing an inquiry to the nearest Aviation Safety District Office. Addresses of these offices may be obtained by writing direct to one of the regional offices listed in Appendix B.

(b) Since an applicant must demonstrate his skill and competency by practical tests which involve the use of facilities, equipment, and tools, the practical examinations are given by appointment only. Appointments for the oral and practical tests shall be arranged by contacting CAA district offices, aviation safety agents, or designated mechanic examiners. A list of designated mechanic examiners can be obtained from CAA district offices for the areas under their supervision.

"24.19 *Reexamination after failure.* An applicant for a mechanic certificate who has failed any prescribed written or practical examination or test may not apply for reexamination within 30 days after the date of such examination or test unless he presents a statement signed by a certificated mechanic holding an appropriate rating, a certificated ground instructor holding an appropriate rating, or an equally qualified individual acceptable to the Administrator, which attests that the applicant has received an additional 5 hours of instruction in each of the subjects failed and that the applicant is considered competent for reexamination."

24.19–1 *Reexamination after failure (CAA interpretations which apply to section 24.19).* A properly certificated repairman is considered as an "equally qualified individual acceptable to the Administrator" and is authorized to give additional instruction, on the specialty for which he is rated, to an applicant who has failed the prescribed written or practical examinations.

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

"24.21 *Substantiation of experience.* An applicant shall submit evidence satisfactory to the Administrator to substantiate the experience qualifications for the mechanic certificate and rating sought."

24.21–1 *Substantiation of experience (CAA rules which apply to section 24.21).* An applicant for an airframe, a powerplant, or an additional rating shall submit documentary evidence of his experience such as a graduation certificate from an approved school, a letter or letters from a person or persons with knowledge of the

applicant's experience, a transcript of his employment record or similar proof that the applicant meets the experience requirements of section 24.31.

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

(a) Airframe.

(b) Powerplant.

(c) Airframe and powerplant."

Mechanical Knowledge, Experience, and Skill Requirements

"24.30 *Mechanical knowledge.* An applicant for a mechanic certificate with airframe or powerplant rating shall successfully accomplish a written and oral examination prescribed by the Administrator covering the construction, maintenance, repair, and inspection of aircraft appropriate to the rating sought, the provisions of this part, the applicable provisions of Parts 18 and 43 of this subchapter, and the provisions of Civil Aeronautics Manual 18. The basic principles covering the maintenance, installation, and inspection of propellers shall be included in the powerplant examination."

24.30–1 *Mechanical knowledge (CAA policies which apply to section 24.30).* An applicant will be given a written [1] and oral examination, appropriate to the rating sought, on aircraft structures and rigging, including flight controls, electrical systems, hydraulic systems, lubrication systems, fuel systems, appliances, powerplants, and propellers, and how to properly inspect, repair, and maintain the same. The written examination will be designed for one specific purpose, i. e., to determine whether the applicant possesses the minimum basic knowledge required for maintaining an acceptable standard of safety and workmanship. To successfully accomplish the prescribed examinations, the applicant must attain a score of at least 70 percent in each section within the maximum time allowed for the particular examination being taken. The applicant will be notified by mail of the results of the written examinations on a Form ACA–578A.

[1] The Administrator has compiled a list of reference material which is broken down into specific sections and subparts appropriate to airframe and powerplant ratings to aid applicants in preparing for the written examinations. The list of material is contained in Appendix A of this manual.

"24.31 *Mechanical experience.* An applicant for a mechanic certificate with either an airframe or powerplant rating shall have had at least 18 months of practical experience with the applicable procedures, practices, materials, tools, machine tools, and equipment generally used in the construction, inspection, maintenance, repair, and alteration of airframes or of powerplants including propellers: *Provided,* That an applicant for an airframe and powerplant rating may be issued such rating, if he has performed concurrently the duties appropriate to both airframe and powerplant ratings for at least 30 months."

24.31–1 *Mechanical experience (CAA interpretations which apply to 24.31).* The 18 months of experience required by 24.31 is interpreted to mean that an applicant for either an airframe or a powerplant rating must have 18 months of exclusive experience for the particular rating. For example, an applicant lists 18 months of airframe experience acquired from January 1, 1951 through July 1952, while employed as a mechanic at Repair Station X. Subsequently, he applies for a powerplant rating and states on the application that he was employed as an engine mechanic at Repair Station X from January 1, 1951 through July 1952. Obviously, he does not meet the experience requirements for a powerplant rating since section 24.31 requires him to have 18 months for each rating, or under the circumstances, 30 months if the experience has been obtained concurrently for both ratings.

"24.32 *Graduates of certificated mechanic schools.* A graduate of a certificated mechanic school shall be deemed to have met the experience requirements of this part for a rating if, within 60 days after graduation, he presents an appropriate certificate of graduation: *Provided,* That when a graduate because of unanticipated circumstances is unable to present his certificate within such period, the Administrator, upon receipt of proof to that effect, may extend the 60-day period."

24.32–1 *Application for written examinations (CAA policies which apply to section 24.32).* An approved school graduate should, at the time he presents his certificate of graduation to an Aviation Safety Agent, apply for the written examination required by Section

24.30 of Civil Air Regulations. The results of the written examination, Form ACA–578A which is mailed to the applicant, will serve as evidence that he has presented his graduation certificate within 60 days subsequent to graduation.

"24.33 *Mechanical skill.* An applicant for a mechanic certificate with a particular rating shall, in a manner prescribed by the Administrator, demonstrate his competency to maintain, repair, inspect, and alter any part of an aircraft for which a rating is sought. An applicant's ability to satisfactorily accomplish minor repairs and minor alterations to propellers shall be a part of such demonstration of competency for the powerplant rating."

24.33–1 *Mechanical skill and scope of the practical and oral examinations (CAA policies which apply to section 24.33).* An applicant on presenting Form ACA–578A to a CAA Aviation Safety Agent or a Mechanic Examiner, showing successful completion of the written examinations, will be given a comprehensive oral and practical examination to afford the applicant an opportunity to demonstrate his skill in performing practical projects on the subjects in the general areas covered by the written examinations.

Privileges and Limitations of a Mechanic Certificate

"24.40 *Mechanic privileges; general.* A certificated mechanic may perform or supervise the maintenance, repair, inspection, and alteration of an aircraft, or component thereof, for which he is rated, and may perform additional work in accordance with the privileges and limitations stated in sections 18.10, 18.11, 24.41, and 24.42 of this subchapter: *Provided,* That he shall not supervise the maintenance, repair, inspection, or alteration of or return to service any part of an aircraft for which he is rated unless he has previously performed the particular operation involved in a satisfactory manner or has otherwise established his competency to perform such operation."

24.40–1 *Mechanic privileges (CAA interpretations which apply to section 24.40).* If a mechanic has not previously established his competency by performing the maintenance, repair, inspection, or alteration of any particular part of an aircraft, he may do so by performing the operation to the satisfaction of an authorized representative of the Administrator or under the direct supervision of an appropriately certificated mechanic or repairman who has had previous experience on the specific operation involved.

"24.41 *Airframe rating.* A certificated mechanic with an airframe rating may release the airframe, or any component thereof, for service after he has performed, supervised, or inspected maintenance, minor repair, or minor alteration thereon."

"24.42 *Powerplant rating.* A certificated mechanic with a powerplant rating may perform maintenance, minor repairs, or minor alterations to a propeller, and may release the powerplant or propeller, or any component thereof, for service after he has performed, supervised, or inspected maintenance, minor repair, or minor alteration thereon."

Operating Rules

"24.50 *General.* A certificated mechanic shall not exercise the privileges of his certificate and rating unless he is familiar with the current manufacturers' instructions and the maintenance manuals pertinent to the particular operation to be performed."

"24.51 *Recent experience requirements.* A certificated mechanic shall not exercise the privileges of his certificate and ratings unless, within the preceding 24 months he has either:

"(a) Been found competent by an authorized representative of the Administrator, or

"(b) For at least 6 months during the preceding 24-month period:

"(1) Served as a mechanic under the terms of his certificate and ratings, or

"(2) Been engaged in the technical supervision of mechanics, or

"(3) Been engaged in the executive supervision of maintenance, repair, or alteration of aircraft, or

"(4) Been engaged in any combination of subparagraphs (1), (2), and (3) of this paragraph."

SUBPART B—Repairman Certificates

Certification Rules

"24.100 *Classification.* There is hereby established a classification of airman, known as a 'repairman,' who (a) possesses special qualifications to perform inspection, maintenance, overhaul, or repair of aircraft, aircraft engines, propellers, or appliances, (b) is employed by a certificated repair station or an appropriately certificated air carrier for a particular job requiring such special qualifications, and (c) is recommended for certification by such employer to the Administrator or his authorized representative.

"24.101 *Issuance.* A repairman certificate may be issued by the Administrator or his authorized representative to an individual who is found to meet the requirements of this subpart and who has been recommended for such certification by the certificated repair station or appropriately certificated air carrier by whom he is employed."

"24.102 *Duration.* A repairman certificate shall be valid until the termination of the holder's employment by the recommending repair station or air carrier, or relief of the repairman from the particular duties for which he was employed and certificated, whichever shall first occur, unless it is sooner suspended, revoked, or otherwise terminated by the Board, after which it shall be returned to the Administrator."

24.102–1 *Duration (CAA interpretations which apply to section 24.102).* At the termination of a repairman's employment, or if he is assigned other duties, or his certificate is otherwise terminated, it is the responsibility of the repairman to return the certificate to the Administrator. This may be accomplished through the local Aviation Safety District Office or Agent or by requesting his employer to forward the certificate for cancellation.

"24.103 *Display.* The repairman certificate shall be kept readily available by the repairman at all times while exercising the privileges of such certificate, and it shall be available for inspection by an authorized representative of the Administrator or the Board, or by any authorized State or local law enforcement officer."

24.103–1 *Readily available (CAA interpretations which apply to section 24.103).* A repairman must keep his certificate within the immediate area where he normally exercises the privileges conferred on him by the certificate.

"24.104 *Identification.* The holder of a certificate issued under the provisions of this subpart shall not, except while engaged in operations conducted by a scheduled air carrier, exercise the privileges conferred by the certificate unless he has readily available a current airman identification card or other identification card acceptable to the Administrator, which duly describes him. The Airman identification card may be obtained from the Administrator who shall prescribe its form and the manner of applying for it."

24.104–1 *Airman identification card (CAA rules which apply to section 24.104).* The requirements for an Airman Identification Card, Form ACA–2135, for repairmen certificated under this subpart are identical to those for mechanics certificated under Subpart A of CAR 24, as outlined in sections 24.10–1, 24.10 2, and 24.10–3.

"24.105 *Change of address.* Within 30 days after any change in the permanent mailing address of a holder of a repairman certificate, the holder shall notify the Administrator in writing of such change. Such notice shall be mailed to the Administrator of Civil Aeronautics, Attention Airman Records Branch, Washington 25, D. C."

24.105–1 *Change of address (CAA policies which apply to section 24.105).* The notification of change of address should include the following information: Full name, new address, old address, and certificate number.

General Certificate Requirements

"24.110 *Citizenship.* An applicant for a repairman certificate shall be:

"(a) A citizen of the United States or an individual who has been admitted to the United States for permanent residence, or

"(b) A citizen of any other country whose government grants or has undertaken to grant to citizens of the United States repairman privileges and employment rights equivalent

to those which such government grants to its own citizens, or

"(c) A citizen of any country or a person without nationality who:

"(1) is in the employ of a United States air carrier; or

"(2) is in the employ of a holder of an air agency certificate issued pursuant to the Civil Air Regulations; or

"(3) does not meet the requirements of subparagraphs (1) or (2) but will, in the opinion of the Administrator, perform duties under his certificate which will benefit the operation of United States aircraft.

"*Provided,* That the holder of a certificate issued under the provisions of this paragraph (c) shall not exercise within the United States the privileges conferred by the certificate."

"24.111 *Age.* An applicant shall be at least 18 years of age."

"24.112 *Education.* An applicant shall be able to read, write, speak, and understand the English language: *Provided,* That if an applicant is employed outside of the United States by an appropriately certificated United States air carrier or a certificated repair station, such applicant shall not be required to meet this requirement, and in that event his certificate shall be appropriately endorsed by the Administrator, or the authorized representative of the Administrator who issued the certificate."

Experience and Skill Requirements

"24.120 *General.* The repair station or air carrier by whom the applicant is or will be employed shall certify to the satisfaction of the Administrator or his authorized representative that the applicant is competent to perform the duties of inspection, maintenance, overhaul, or repair of the particular aircraft, aircraft engines, propellers, or appliances with respect to which he is to be employed."

"24.121 *Minimum experience.* The applicant 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 the inspection, maintenance, overhaul, or repair functions of the particular job for which he is to be employed and certificated."

Privileges and Limitations of a Repairman Certificate

"24.130 *General.* A certificated repairman may supervise or perform the inspection, maintenance, overhauling, or repair of aircraft, aircraft engines, propellers, or appliances in connection with the particular job for which he was employed and certificated. Such privileges may be exercised only in connection with such duties with the certificated repair station or appropriately certificated air carrier by whom he was recommended and employed."

Operating Rules

"24.140 *General.* A certificated repairman shall not exercise the privileges of his certificate unless he is familiar both with current manufacturers' or appropriate air carriers' instructions and the maintenance manuals pertinent to the particular operation to be performed."

Appendix A

Written Examination Procedures for Airframe and Powerplant Ratings

Introduction

The applicant should always read the statement or question first to be sure that he understands what it means before looking at the answers listed below. An attempt should then be made to determine what the correct answer should be, or work out the problem to obtain the answer. The applicant should always bear in mind while taking the examination that the questions are not trick questions, but that each statement means exactly what it says. The statements do not concern exceptions to rules; they refer to general rules. Finally, the applicant should look through the list of alternate answers or phrases and find the one which says the same thing as his answer. The applicant should be sure that the one he selects answers the question completely. Only one of the alternate answers given is correct. The others may be answers that result from incorrect procedure (in a problem, for example) or from wrong interpretation of the question, or from misconceptions.

If considerable difficulty is encountered with a particular problem, the applicant should not spend too much time on it, but he should proceed to the next problem where the answer is known. When that section of the examination has been completed, he should go back to the unanswered questions. This procedure will enable him to use the total time available to maximum advantage in demonstrating his knowledge and understanding of the subject.

An applicant who is adequately prepared will have ample time to complete his work within the maximum time limit established for the examination. An applicant's inability to complete the examination within the time limit may indicate that he has not acquired adequate proficiency, that he lacks self-assurance, or that his reactions and thinking processes are not sufficiently rapid to assure reasonable skill in making decisions and taking appropriate action.

If the applicant remembers these facts, follows the instructions given, and knows the subject matter on which he is being tested, he will have no difficulty with the examination.

The answer sheet, together with any papers used during the examination for computation or notations, shall be surrendered to the Aviation Safety Agent monitoring the examinations before the applicant leaves the room.

The examinations are graded in the Washington office of the Civil Aeronautics Administration and the results are mailed direct to the applicant. Applicants must receive a grade of at least 70 percent in each section to be successful in the examination.

Airframe Rating

The airframe written examination consists of five sections. The general scope of the examination and sample questions on each of the five sections are here presented. Correct answers to the sample questions are indicated by asterisks.

SECTION ONE. Rigging and Assembly

Rigging of flight controls and cables, safetying turnbuckles, bolts, nuts, etc., basic aerodynamics in relation to flight characteristics and performance affected by rigging, and weight and balance:

(A) Upon completion of assembly, turnbuckles should—

1. Not have any threads showing.
2. Be safetied by a locknut.
*3. Be safetied and not have more than three threads showing.
4. Be safetied in such a manner as to create the least amount of drag.

(B) The rudder should be alined with—

1. The thrust line.
2. Center section of wing.
3. Geometric center of tail section.
*4. Vertical fin.

(C) On large control surfaces, static balance is obtained by—

*1. Placing counterweight arms or lead weights in the leading edges.
2. Equipping the control surfaces with trim tabs.
3. Putting hinges on the control surfaces at the center line of the surface.
4. Balancing the control arms.

SECTION TWO. Wood, Fabric Covering and Doping

Repairs to wood structures such as spars and ribs, selection of woods, gluing, rib-stitching, doping, painting and finishing, fabric covering and patching, bonding control cables, and Civil Air Regulations:

Wood

(A) A spruce spar may contain knots provided they—

1. Are not less than one-fourth inch in diameter, sound and tight.
2. Are small and not too close together.
3. Do not go all the way through the spar.
* 4. Are not more than one-fourth inch in diameter, sound and tight, and at least 20 inches apart and not occurring on the edges.

(B) A wood spar may be spliced—

1. Only at its approximate center.
* 2. At any point where there are no fittings.
3. Only at a fitting point.
4. Only at a compression member.

Fabric Covering and Doping

(A) Civil Air Regulations specify that in hand-sewing fabric covering there should be a minimum of—

* 1. 4 stitches per inch.
2. 6 stitches per inch.
3. 8 stitches per inch.
4. 10 stitches per inch.

(B) The edge of a fabric patch should be—

1. Sewed only by hand.
2. Cut square and straight.
3. Cut on the bias.
* 4. Pinked or frayed out about one-fourth inch.

(C) In order to make tight fabric patches, it is good practice to—

1. Brush on more dope at the center.
2. Prestretch the fabric.
* 3. Leave the center undoped on the first coat.
4. Brush on the dope evenly over the patch.

(D) On a lacquer or pigmented dope surface, orange peel or pebble finish is the result of—

* 1. Insufficiently reduced lacquer or pigmented dope.
2. Applying too heavy or too wet a coat of dope.
3. Using too much thinner in the lacquer or dope.
4. Holding the spray gun too close to the surface.

SECTION THREE. Sheet Metal and Welding

Proper methods and procedures for riveting, identification of rivets, aluminum and aluminum alloys, SAE numbering system for steels, basic heat-treating, sheet metal fabrication, acetylene welding on steel and aluminum, brazing, care of and general operation of welding and sheet metal equipment:

(A) The proper length of the shank of a rivet is the sum of the thickness of the metals being riveted plus—

1. Three times the diameter of the rivet shank.
2. One times the diameter of the rivet shank.
3. Two times the diameter of the rivet shank.
* 4. One and one-half times the diameter of the rivet shank.

(B) In riveting a steel fitting to an aluminum alloy structure, a mechanic should—

1. Brace the surrounding structure to dampen vibration from the steel fitting.
* 2. Separate the fitting from the structure by use of protective material.
3. Use a rivet of larger diameter than would be used if both fittings were aluminum alloy.

4. Use a coat of grease between the fitting and the structure.

(C) Welds tend to crack immediately outside the welded area when the welded joint—

1. Is built up to provide extra thickness at the seam.
* 2. Is cooled too rapidly.
3. Has insufficient heat when fused.
4. Has too much heat when fused.

(D) After completion of an aluminum weld, all flux should be removed immediately in order to—

1. Permit normalizing of the weld.
* 2. Prevent corrosion.
3. Avoid heat strains.
4. Prevent formation of scale.

SECTION FOUR. Hydraulic Systems and Components

Locating and correcting malfunctioning in hydraulic systems such as leaks, worn seals, etc.; operation, maintenance, and repair of hydraulically operated brakes, landing gear struts, controls, check and relief valves; various types of hydraulic fluids:

(A) Hydraulic systems are equipped with relief valves to—

1. Bleed the lines automatically.
2. Prevent flaps and landing gear from falling into the extended position.
3. Maintain an even minimum pressure.
*4. Maintain an even maximum pressure.

(B) If a hydraulic system pressure gage fluctuates violently, this indicates that—

1. Relief valves are stuck open.
2. Maximum allowable pressure is being exceeded.
*3. There is insufficient fluid in the reservoir.
4. The engine driven fuel pump is operating at too low a speed.

(C) Fluid is added to the shock struts on landing gears when the—

1. Airplane is in the unloaded condition.
*2. Strut is fully collapsed and supporting the weight of the airplane.
3. Airplane is on wing jacks and has its struts extended.
4. Weight of the airplane is not on the wheels.

(D) If the flaps fail to lower when the control is moved to flapdown position, the trouble may be due to—

1. The hydraulic fluid being too cold.
2. The pressure relief valve spring being set too high.
*3. The relief valve by-passing.
4. The hydraulic fluid being too thin.

SECTION FIVE. Electrical Systems and Components

Operation, construction, and sources; maintenance of power sources such as batteries and generators; maintenance, repair, and adjustment of generators and control units such as voltage regulators, reverse current cut-out relays, etc.; wiring circuits, selection, and installation of fuses, wires, and terminals; soldering, lighting systems, and the precautions to be observed in routing and attaching electrical cables; trouble-shooting to locate causes and how to correct failures of landing gear, lights, generators, etc.:

(A) Electrical wiring should be carefully grouped and properly supported in bundles to—

1. Provide easy access to wires when trouble-shooting.
2. Allow adequate ventilation of electrical circuit wires.
*3. Prevent chafing of insulation which might cause short circuit.
4. Provide central location for all electrical equipment.

(B) Aircraft circuit breakers are intended primarily to—

1. Serve as switches.
2. Protect lamps and motors.
*3. Prevent fire and smoke due to overheating of wires.
4. Prevent overvoltage.

Powerplant Rating

The powerplant written examination consists of six sections. The general scope of the examinations and sample questions on each of the six sections are listed below. Answers to the sample questions are indicated by an asterisk.

SECTION ONE. Carburetors and Carburetion

Accelerator pumps, direct fuel injection, injection type carburetors, fuel pumps, mixture controls, fuel line inspection and installation, and trouble-shooting:

(A) The main air bleed jet in a carburetor—

*1. Assists in atomizing the fuel.
2. Regulates the pressure of the metering system.
3. Regulates the velocity of fuel through the venturi.
4. Maintains atmospheric pressure in the carburetor.

(B) On a supercharged engine, a small leak in the line between the manifold pressure gage and the induction system may cause the gage to—

1. Register high at high power.
*2. Register low at high power.
3. Register atmospheric pressure.
4. Fluctuate.

SECTION TWO. Magneto and Ignition Systems

High and low tension ignition systems, magneto nomenclature, timing, repair, overhaul, and trouble-shooting; battery ignition systems, and the general servicing, operation, and maintenance of spark plugs and ignition systems, and the location and correction of the causes of malfunctioning:

(A) In all magnetos, the purpose of the safety gap is to—

1. Protect the primary winding from being short circuited.
2. Prevent the condenser from becoming overloaded.
3. Protect the distributor from excessive voltage.
*4. Protect the high tension insulation in the magneto.

(B) If the movable breaker point in a magneto sticks or freezes, it may cause the—

1. Condenser to burn out.
2. Points to be burned.
*3. Engine to stop running.
4. Engine to miss at high speed.

SECTION THREE. Theory and Maintenance of Powerplants

This section consists of questions on the repair, overhaul, maintenance, and trouble-shooting on various types of powerplants that are used in light and medium weight aircraft. The questions are predominately on trouble-shooting to determine the causes and the proper corrective methods that are considered as standard practices:

(A) If an engine misses consistently on one or more cylinders, the probable cause is—

1. That the distributor points or contacts are dirty.
2. That the fuel lines are partially obstructed.
3. That there is water in the fuel.
*4. A damaged distributor head.

(B) Valves should be adjusted only when the piston is—

1. On top center of the exhaust stroke.
*2. On top center of the firing stroke.
3. On bottom center of the firing stroke.
4. Starting on the compression stroke.

SECTION FOUR. Lubrication and Oiling Systems

The purpose and function of the major units of the oiling system such as the oil pump, temperature gauge, pressure gauge, pressure relief valve, by-pass valves, etc. Trouble-shooting and inspection of oil tank, oil tank installation and plumbing, screens, filters, drain plugs, etc. Determine the causes and correction for excessively low or high oil temperatures and pressures. Reasons for specific oil viscosities and how they affect engine performance:

(A) Excessive oil consumption and fouling of spark plugs may be caused by—

*1. Worn piston rings.
2. Excessive clearance at cam hub bearing.
3. Filling the oil tank above predetermined limit.
4. Oil by-passing back to the scavenger pump.

(B) An oil radiator usually is located in the cooling system between the—

1. Engine outlet and the automatic oil temperature regulator.

2. Oil pressure pump and the engine oil outlet.
3. Oil tank and the automatic temperature regulator in the pressure line.
*4. The automatic temperature regulator and the supply tank.

SECTION FIVE. Propellers

Standard methods and procedures for servicing, maintaining, and repairing wood propellers. Operation and maintenance of two-position hydraulic and hydromatic propellers and governors. Basic operational questions on electrical propellers not requiring specialized knowledge:

(A) If a hydraulically operated, two-position propeller shifts into high pitch during take-off, the cause may be—

1. A defective counterweight assembly.
*2. A rapid drop in oil pressure.
3. A Rapid rise in oil pressure.
4. Excessively worn index pins.

(B) A precaution necessary to keep the hub nut from seizing the shaft is to—

1. Dust the threads with flake graphite.
2. Dip the nut in engine oil.
*3. Coat the nut with white lead mixed with oil.
4. Hand tighten the nut.

SECTION SIX. Electrical Systems and Components

This section is essentially the same as Section Five of the Airframe Examination, except that it applies to the operation, inspection, and repair of electrical systems and accessories in relation to powerplants:

(A) A generator commutator should be cleaned with—

1. Emery cloth.
2. Cleaning solvent.
*3. Fine sandpaper or crocus cloth.
4. Small wire brush.

(B) The terminal has broken off the end of an aluminum cable. You have terminals of the correct size and shape in both copper and aluminum. Which of the following replacement procedures would you follow?

1. Solder a copper terminal to the cable.
2. Solder an aluminum terminal to the cable.
3. Pressure-attach a copper terminal to the cable.
*4. Pressure-attach an aluminum terminal to the cable.

Reference Material

The publications listed below which are marked "GPO" may be ordered from the Government Printing Office. Orders must be accompanied by money order or check made payable and addressed to the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Publications marked "CAA" may be obtained from the Office of Aviation Information, Civil Aeronautics Administration, Washington 25, D. C. There are also many excellent publications which are used as textbooks in the CAA certificated mechanic schools. These may be obtained by contacting the leading publishing houses who will be glad to furnish a list of their aviation technical books used in the CAA approved training courses.

Airframe and Powerplant

Civil Air Regulations and Civil Aeronautics Manuals:

Part 1. Certification, Identification, and Marking of Aircraft and Related Products—1.50, and 1.60 through 1.76. GPO, 5 cents.

CAM 1. Certification, Identification, and Marking of Aircraft and Related Products—1.50, and 1.60 through 1.76. GPO, $1.00.

*Part 4a. Airplane Airworthiness. GPO, 20 cents.

Part 18. Maintenance, Repair, and Alteration of Certificated Aircraft and of Aircraft Engines, Propellers, and Instruments. GPO, 5 cents.

CAM 18. Maintenance, Repair, and Alteration of Certificated Aircraft and of Aircraft Engines, Propellers, and Instruments. GPO, $1.75.

Part 24. Mechanic and Repairman Certificates. GPO, 5 cents.

Part 43. General Operating Rules. 43.20 through 43.24, and 43.30. GPO, 5 cents.

CAM 43. Supplement Nos. 1 and 7. CAA, no charge.

Civil Aeronautics Technical Manual 101, Personal Aircraft Inspection Manual. GPO, 55 cents.

Civil Aeronautics Technical Manual 107, Aircraft Powerplant Handbook. GPO, $1.50.

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*Airframe.—Starting with subpart E (page 12), 4a.301 through 4a.483; starting with subpart F (page 16), 4a.523 through 4a.537 and 4a.565 through 4a.581.

*Powerplant.—Starting with subpart G (page 19), 4a.591 through 4a.599; 4a.605 through 4a.616; 4a.621 through 4a.628; 4a.633 through 4a.637; 4a.642 through 4a.646; 4a.651 through 4a.656; and 4a.661.

Appendix B

Regional Offices and Areas of Jurisdiction

Region 1. Headquarters Office at Jamaica, Long Island, N. Y.

Composed of the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Delaware, New Jersey, Pennsylvania, Ohio, Maryland, Virginia, West Virginia, Kentucky, and the District of Columbia.

Region 2. Headquarters Office at Fort Worth, Texas.

Composed of the States of Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Arkansas, Oklahoma, Louisiana, and Texas, and Puerto Rico, Swan Island, the Virgin Islands, and the Canal Zone.

Region 3. Headquarters Office at Kansas City, Missouri.

Composed of the States of Michigan, Indiana, Wisconsin, Illinois, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.

Region 4. Headquarters Office at Los Angeles, California.

Composed of the States of Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Idaho, Washington, Oregon, Nevada, and California.

Region 5. Headquarters Office at Anchorage, Alaska.

Consists of the Territory of Alaska, including the Aleutian Islands.

Region 6. Headquarters Office at Honolulu, T. H.

Consists of the areas contained within the Honolulu, Wake and Guam Flight Information Regions established by ICAO. (Major operations are conducted in the Territory of Hawaii and the islands of Canton, Wake and Guam.)

International Region.

Regional Administrator, International Region, Civil Aeronautics Administration, Washington 25, D. C.

U. S. GOVERNMENT PRINTING OFFICE: 1954