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Do not destroy the following until after revised Part 20, adopted by the Civil Aeronautics Board August 23, 1956, becomes effective:

CIVIL AERONAUTICS MANUAL 20, DATED JUNE 1954.

SUPPLEMENT NO. 1 TO CIVIL AERONAUTICS MANUAL 20, DATED NOVEMBER 30, 1954.

SUPPLEMENT NO. 2 TO CIVIL AERONAUTICS MANUAL 20, DATED MARCH 15, 1956.

SUPPLEMENT NO. 1 TO VOLUME IV, DATED AUGUST 1, 1956.

SUPPLEMENT NO. 2 TO VOLUME IV, DATED OCTOBER 1, 1956.

See section 20.2 of revised Part 20 and the Introductory Note to Civil Aeronautics Manual 20 revised August 1, 1957, for explanation.

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Civil Aeronautics Manual 20

Pilot Certificates

Revised

August 1, 1957

Introductory Note

Civil Aeronautics Manual 20 contains in a consolidated form (1) Civil Air Regulations, Part 20, Pilot and Instructor Certificates, adopted by the Civil Aeronautics Board and amendments 20–1 through 20–3; and (2) the policies and interpretations issued by the Administrator of Civil Aeronautics in application to the various sections of the regulations.

CAA *policies* provide detailed technical information on recommended methods of complying with the Civil Air Regulations. Such policies are for the guidance of the public and are not mandatory in nature.

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.

This manual is arranged to give the number, title, and text of each section of the regulations followed by any policies or interpretations applicable to that section. These policies or interpretations of the Administrator are identified by consecutive dash numbers appended to the regulations section number.

This manual supersedes Civil Aeronautics Manual 20 dated June 1954, Supplement No. 1 dated November 30, 1954, and Supplement No. 2 dated March 15, 1956 to CAM 20; and Supplement No. 1 dated August 1, 1956 and Supplement No. 2 dated October 1, 1956 to Volume IV. It will be revised from time to time in accordance with the changes in the Civil Air Regulations, Part 20, or as the need for additional explanations are brought to the attention of the Administrator.

Although this manual is adopted to become effective August 1, 1957, in accordance with the provisions of revised Part 20 of the Civil Air Regulations, the Administrator, prior to September 1, 1957, may issue certificates and ratings on request, in accordance with the provisions of Part 20 of the Civil Air Regulations and Civil Aeronautics Manual 20 that were effective immediately prior to the effective date of this revision. After September 1, 1957, all certificates and ratings may be issued only pursuant to revised Part 20 of the Civil Air Regulations and this revised Civil Aeronautics Manual.

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Pilot Certificates

Applicability and Definitions

20.1 *Applicability of this part.* This part prescribes standards for the issuance of student, private, and commercial pilot and flight instructor certificates and aircraft and instrument ratings. Regulations for the issuance of airline transport and lighter-than-air pilot certificates are specified in Parts 21 and 22, respectively, of this subchapter.

20.2 *Optional compliance.* In lieu of compliance with the provisions of this part, the Administrator, prior to September 1, 1957, shall issue certificates and ratings, on request, in accordance with the provisions of this part that were effective immediately prior to the effective date of this revision.

20.5 *Definitions.* As used in this part terms shall be defined as follows:

Actual instrument flight time. Actual instrument flight time is flight time during which the pilot is operating an aircraft solely by reference to instruments under actual instrument weather conditions.

Aircraft. An aircraft is any contrivance now known or hereafter invented, used, or designed for navigation of or flight in the air.

Airplane. An airplane is a power-driven fixed-wing aircraft, heavier than air, which is supported by the dynamic reaction of the air against its wings.

Calendar month. A calendar month is that period of time extending from the first day of any month as delineated by the calendar through the last day thereof.

NOTE: A period of 12 calendar months would extend from any day within any month to the end of the last day of the same month of the following year.

Category (of aircraft). A category is a broad classification of aircraft with distinct configuration and operating characteristics such as airplane, rotorcraft, or glider.

Class (of aircraft). A class is a classification of aircraft within a category differentiating between single-engine and multiengine and land and water configurations.

Copilot. A copilot is a pilot serving in any piloting capacity other than as pilot in command on aircraft requiring two pilots for normal operations, but excluding a pilot who is on board the aircraft for the sole purpose of receiving dual instruction.

Day VFR flight time. Day VFR flight time is that flight time acquired under visual flight rules between the beginning of morning civil twilight and the ending of evening civil twilight, as published in the "American Air Almanac" converted to local time for the locality concerned.

Dual instruction time. Dual instruction time is that portion of flight time during which a person is receiving flight instruction from a certificated flight instructor on board the aircraft.

Flight instruction time. Flight instruction time is that portion of a flight during which a person is receiving flight instruction from a certificated pilot authorized by the Civil Air Regulations to give flight instruction.

Flight instructor. A flight instructor is a certificated pilot authorized by the Civil Air Regulations to give flight instruction.

Flight time. Flight time is the total time from the moment the aircraft first moves under its own power for the purpose of flight until the moment it comes to rest at the end of the flight.

Glider. A glider is a heavier-than-air aircraft the free flight of which does not depend principally upon a power-generating unit.

Instrument time. Instrument time is that time during which a pilot is operating an aircraft under actual or simulated instrument flight conditions solely by reference to instruments, or time acquired in a synthetic trainer approved for instrument flight training.

Night VFR flight time. Night VFR flight time is that flight time acquired under visual flight rules between the ending of evening civil twilight and the beginning of morning civil twilight, as published in the "American Air Almanac" converted to local time for the locality concerned.

Pilot in command. A pilot in command is the pilot responsible for the operation and safety of the aircraft during the time defined as flight time.

Rotorcraft. A rotorcraft is a power-driven aircraft, heavier than air, which is supported during flight by one or more rotors.

Simulated instrument flight time. Simulated instrument flight time is flight time during which the pilot is operating an aircraft solely by reference to instruments under simulated instrument flight conditions.

Solo flight time. Solo flight time is flight time during which the pilot is the sole occupant of the aircraft.

Synthetic trainer. A synthetic trainer is a device the use of which is approved by the Administrator to simulate certain operating conditions.

Type [of aircraft]. Type is a specific classification of aircraft having the same basic design including all modifications thereto except those modifications which result in a change in handling or flight characteristics.

General

20.10 ***Application and issuance.*** (a) An application for a pilot certificate or any rating shall be made on a form furnished by the Administrator.

(b) A student, private, or commercial pilot or flight instructor certificate with appropriate aircraft ratings shall be issued by the Administrator to an applicant who meets the applicable requirements. Additional aircraft category, class, and type, and instrument ratings for which an applicant has been found qualified shall be issued in connection with a pilot or flight instructor certificate. A pilot certificate with appropriate limitations shall be issued to an applicant who cannot comply with all the prescribed skill requirements due to the special characteristics of the aircraft used in the flight test if he meets all other requirements for the issuance of the certificate sought.

(c) An applicant for a pilot certificate who presents a medical certificate issued under the physical-deficiencies provision of Part 29 of this subchapter and meets all other requirements for the issuance of the certificate sought shall be issued a pilot certificate containing such operating limitations as the Administrator may find are commensurate with the physical deficiencies entered on his medical certificate.

(d) The prescribed examinations and tests shall be given by a person designated by the Administrator.

20.10–1 *Flight tests in aircraft with special flight characteristics (CAA policies which apply to sec. 20.10 (b)).* Flight test maneuver requirements for pilot certificates will be modified only when the operating limitations of the aircraft used prohibit the performance of required maneuvers or procedures.

(Published in 22 F. R. 5535, effective Aug. 1, 1957.)

20.10–2 *Waivers for pilot applicants who fail to meet physical standards (CAA policies which apply to sec. 20.10 (c)).* An applicant who does not meet the physical standards of Part 29 of this subchapter should apply to his Regional Flight Surgeon,[1] or the Chief, Medical Division, Civil Aeronautics Administration, Washington 25, D. C., for a waiver of these standards as authorized under section 29.5 of the Civil Air Regulations. Waivers of physical standards are issued by the CAA on the basis of a study of the applicant's flight operation record, ability, judgment, and/or the results of a special medical test authorized under section 20.10 (c).[2] In order to take a medical flight test, the applicant must meet all experience requirements for a pilot certificate and present written authorization from the CAA Medical Division for such a test.

(Published in 22 F. R. 5535, effective Aug. 1, 1957.)

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[1] Regional Flight Surgeon, Region One, CAA, New York International Airport, Jamaica, L. I., New York; Regional Flight Surgeon, Region Two, CAA, P. O. Box 1689, Fort Worth 1, Texas; Regional Flight Surgeon, Region Four, CAA, P. O. Box 45007, Airport Station, Los Angeles, California; Regional Flight Surgeon, Region Five, CAA, Box 440, Anchorage, Alaska.

[2] A pilot certificate issued on the basis of a special medical flight test will bear special aircraft, equipment, or operating limitations appropriate to the deficiency involved; or the notation "Issued on the Basis of Special Medical Test" to indicate that no limitation was found necessary.

20.10–3 *Application for a pilot certificate of a lesser grade (CAA policies which apply to sec. 20.10).* (a) *Permanent exchange.* The holder of a valid pilot certificate may make application for a pilot certificate of a lower grade. The application should be made on Form ACA–355, and include the following statement or its equivalent:

This request is made for my own reasons, with full knowledge that my airline transport pilot certificate (or commercial pilot, or private pilot certificate) may not be reissued to me unless I again pass the examinations and tests prescribed for its issuance.

(b) *Temporary exchange.* The holder of a pilot certificate may make application for a pilot certificate of a lower grade, and retain the privilege of reinstating his former certificate if he passes the appropriate medical examination within a period of 2 years. An applicant who wishes to retain this privilege should include the following statement or its equivalent on his application:

This request for a lower grade of pilot certificate is made for my own reasons. I request a Certificate of Aeronautical Knowledge which will authorize the reinstatement of my airline transport pilot certificate (or commercial pilot, or private pilot certificate) within 2 years, providing I pass the appropriate medical examination for that certificate.

(Published in 22 F. R. 5535, effective Aug. 1, 1957.)

20.10–4 *Application to change a name on a pilot certificate (CAA policies which apply to sec. 20.10).* Application to change a name on a pilot certificate should be made on Form ACA–342, and submitted to an inspector. The application should be accompanied by the applicant's current pilot certificate and the marriage license, court order, or other document verifying the name change. These documents will be returned to the applicant after examination by the inspector.

(Published in 22 F. R. 5535, effective Aug. 1, 1957.)

20.10–5 *Application to replace a lost or destroyed pilot or medical certificate (CAA policies which apply to sec. 20.10).* (a) *Pilot certificate.* Application to replace a lost or destroyed pilot certificate should be made in a letter addressed to the Chief, Airman Records Branch, W–253, Civil Aeronautics Administration, Washington 25, D. C. The letter should contain the following: (1) A brief statement of the circumstances surrounding the loss or destruction of the certificate; (2) all available information regarding the certificate, such as grade, number, exact name in which it was issued, ratings, and date of issuance; and (3) be accompanied by a check or money order for $2.00, payable to the Civil Aeronautics Administration, Department of Commerce.

(b) *Medical certificate.* Application to replace a lost or destroyed medical certificate should be made in the form of a letter addressed to the Chief, Medical Division, W–265, Civil Aeronautics Administration, Washington 25, D. C., and accompanied by a check or money order for $2.00, payable to the Civil Aeronautics Administration, Department of Commerce.

(c) *Telegraphic evidence of lost pilot or medical certificate.* (1) The person to whom a pilot or medical certificate was issued may, upon loss of that certificate, obtain from the CAA an official telegram confirming its issuance. This telegram may be carried in pilot's personal possession as a pilot certificate, medical certificate, or both, pending the receipt of duplicate certificates issued in accordance with paragraphs (a) and (b) of this section: *Provided,* That he has not been notified of the suspension or revocation of the certificate concerned.

(2) The request for such a telegram may be made by prepaid telegram stating the date on which a duplicate certificate or certificates were requested, or including the request for such duplicate(s) and a money order for the necessary fee or fees.

(3) A request for a telegram for temporary use in lieu of a lost pilot or medical certificate should be addressed to the appropriate division shown in paragraph (a) or (b) of this section. A request for a telegram for temporary use in lieu of both pilot and medical certificates should be addressed to the Chief, Airman Records Branch, W–253, Civil Aeronautics Administration, Washington 25, D. C.

(Published in 22 F. R. 5535, effective Aug. 1, 1957.)

20.11 *Duration of certificates.* (a) Student pilot and limited flight instructor certifi-

cates shall expire 24 calendar months after the date of issuance.

(b) Private and commercial pilot and flight instructor certificates shall remain in effect until surrendered, suspended, or revoked, or until a general termination date is set by the Board.

(c) A temporary pilot certificate effective for a period not to exceed 90 days may be granted to an applicant pending issuance of the certificate or rating sought.

20.11–1 *Voluntary surrender of certificate or rating (CAA policies which apply to sec. 20.11 (b)).* The holder of a pilot certificate may surrender it at any time, to an inspector [3] for cancellation. Final acceptance of surrender for cancellation is within the discretion of the Administrator. When a certificate has been accepted for surrender, the pilot must requalify and pass all applicable examinations and tests if he wishes to obtain another pilot certificate.

(Published in 22 F. R. 5535, effective Aug. 1, 1957.)

20.11–2 *Validity of Flight Instructor Certificates (CAA interpretations which apply to sec. 20.11).* A Limited Flight Instructor or a Flight Instructor Certificate becomes invalid at any time the holder does not possess a current and effective pilot certificate as prescribed by section 20.130 (a).

(Published in 22 F. R. 5535, effective Aug. 1, 1957.)

20.11–3 *Issuance of temporary pilot certificates (CAA policies which apply to sec. 20.11 (c)).* Temporary pilot certificates are issued to qualified applicants by inspectors and designated pilot examiners pending the examination of the applicants' records and the issuance of certificates of longer duration by the Administrator.

(Published in 22 F. R. 5535, effective Aug. 1, 1957.)

20.12 *Citizenship.* An applicant for a pilot or flight instructor certificate may be a citizen of any country or a person without nationality.

20.13 *Reexamination after failure.* An applicant who fails to pass any theoretical or practical examination may reapply after the expiration of 30 days or upon presenting a statement from a rated flight or ground instructor, as applicable, certifying that he has given the student additional instruction and now deems him competent to pass the examination.

20.13–1 *Instructor recommendations for reexamination within 30 days after failure (CAA policies which apply to sec. 20.13).* (a) *Written examinations.* Recommendations presented for reapplication within a 30-day period after the failure of a written examination will be accepted from an appropriately rated instructor as follows:

(1) Private—Limited Flight Instructor or Flight Instructor Certificate with appropriate category rating, or Ground Instructor Certificate with ratings for subjects covered in the examination failed.

(2) Commercial—Flight Instructor (unlimited) with appropriate category rating, or Ground Instructor Certificate with ratings for subjects covered in the examination failed.

(3) Instrument—Flight Instructor Certificate with instrument rating, or Ground Instructor Certificate with ratings for subjects covered in the examination failed.

(4) Flight Instructor—Flight Instructor Certificate (unlimited) with appropriate category or instrument rating.

(b) *Flight tests.* Recommendations presented for reapplication within a 30-day period after failure of a flight test will be accepted only from an appropriately rated Limited Flight Instructor or Flight Instructor.

(Published in 22 F. R. 5535, effective Aug. 1, 1957.)

20.14 *Prerequisites for examinations and tests.* (a) To be eligible to take a flight test for a pilot or flight instructor certificate or aircraft or instrument rating, the applicant shall meet the following requirements:

(1) He must have passed the prescribed written examination within the preceding 24 calendar months;

(2) He must have acquired the prescribed aeronautical experience; and

(3) He must hold a valid medical certificate appropriate to the certificate or rating sought.

(b) There are no prerequisites for taking the written or physical examinations.

[3] The word "inspector" used in this manual denotes a Flight Operations and Airworthiness Inspector employed by the Civil Aeronautics Administration.

20.15 *Aircraft used in flight tests.* The applicant shall furnish a certificated aircraft equipped with fully functioning dual controls for all flight tests except those for which the Administrator determines that fully functioning dual controls are not necessary.

20.15–1 *Certificated aircraft (CAA policies which apply to sec. 20.15).* (a) For the purpose of taking pilot flight tests, a "certificated aircraft" means a United States registered aircraft with a valid airworthiness certificate which contains no limitations excluding pilot flight tests.

(b) A foreign registered aircraft having a valid airworthiness certificate issued by the proper authorities of the country in which the aircraft is registered may be used for pilot flight tests at the discretion of the inspector or examiner.

(c) Military aircraft on operational status may also be used at the discretion of the inspector or examiner, provided permission from the appropriate military authority is obtained.

(Published in 22 F. R. 5536, effective Aug. 1, 1957.)

20.15–2 *Fully functioning dual controls (CAA policies which apply to sec. 20.15).* An applicant who wishes to use an aircraft without complete fully functioning dual controls should make prior arrangement with the examiner or inspector concerned before presenting himself for a flight test. The applicant may be permitted to use such an aircraft if the examiner or inspector determines, upon consideration of all factors, that the flight test can be conducted safely.

(Published in 22 F. R. 5536, effective Aug. 1, 1957.)

20.16 *Pilot logbooks.* All flight time used to meet the experience requirements for any pilot certificate, rating, or operating privilege shall be substantiated by a reliable record but the logging of other flight time is not required. Such record shall include the following information:

(a) *General.* (1) Date,
(2) Duration,
(3) Points of departure and arrival,
(4) Type of aircraft, and
(5) Identification mark of the aircraft.

(b) *Type of piloting time.* (1) Pilot-in-command, or solo,
(2) Copilot,
(3) Dual instruction, including the procedures and maneuvers, or
(4) Synthetic trainer.
(c) *Conditions of flight.* (1) Day VFR,
(2) Night VFR,
(3) Actual instrument flight, or
(4) Simulated instrument flight.

20.16–1 *Flight time which must be logged (CAA interpretation which applies to sec. 20.16).* The wording "or operating privilege" refers to the recent flight experience requirements of section 43.68, of this subchapter.

(Published in 22 F. R. 5536, effective Aug. 1, 1957.)

20.17 *Logging of flight time.* (a) *Student.* A student pilot may log as solo only that flight time during which he is the sole occupant of the aircraft.

(b) *Private and commercial.* (1) *Pilot-in-command and solo.* A private or commercial pilot may log as pilot in command only that flight time during which he is the sole manipulator of the controls of an aircraft for which he is rated or that flight time during which he is the sole occupant of the aircraft. He may log as solo only that pilot-in-command time during which he is the sole occupant of the aircraft. A flight instructor may log as pilot-in-command that flight time during which he is serving as flight instructor. All flight time so logged may be credited toward the total flight time required for a higher pilot certificate.

(2) *Copilot.* A private or commercial pilot may log as copilot that flight time during which he is performing the duties of a copilot. Such pilot shall be entitled to credit not more than 50 percent of such flight time toward the total flight time required for a higher grade of pilot certificate, but in no event shall a private pilot be entitled to credit more than 50 hours of such flight time.

(3) *Dual instruction.* A private or commercial pilot may log as dual instruction that flight time during which he is receiving flight instruction from a certificated flight instructor on board the aircraft.

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(c) *Instrument time.* Instrument flight time may be logged as such by the pilot actually manipulating the controls only when the aircraft is flown solely by reference to instruments either under actual or simulated instrument flight conditions.

20.18 *Change of address.* Within 30 days after any change in the permanent mailing address of the holder of a pilot certificate, he shall notify the Administrator in writing of his new address. This notice shall be mailed to the Administrator of Civil Aeronautics, attention Airman Records Branch, Washington 25, D. C.

Pilot Certificates; Airplane Rating

Student

20.20 *Age.* 16 years is the minimum age for the issuance of a student pilot certificate. If an an applicant is less than 21 years of age and is not a regular or reserve member of the armed forces of the United States or enrolled in an established ROTC or other training program of such armed forces at the time of making application, he shall submit with his apolication, the written consent of either parent or of his legal or natural guardian.

20.20–1 *Consent of parent or guardian (CAA policies which apply to sec. 20.20).* The written consent required for minor applicants should be endorsed in the appropriate space on the application form, or submitted on a separate sheet.

(Published in 22 F. R. 5536, effective Aug. 1, 1957.)

20.20–2 *Minors in the Armed Forces (CAA policies which apply to sec. 20.20).* An applicant under 21 who is a regular or reserve member of the Armed Forces or enrolled in an established ROTC or other Armed Forces training program should indicate such membership on his application and include his military serial number, or attach to the application a written statement from his appropriate commanding officer certifying that the applicant is a member of such Armed Forces.

(Published in 22 F. R. 5536, effective Aug. 1, 1957.)

20.20–3 *Other minors (CAA interpretations which apply to sec. 20.20).* No consent is required for a married male applicant under 21, but a married female applicant under 21 must furnish the consent of her husband, who may be under 21.

(Published in 22 F. R. 5536, effective Aug. 1, 1957.)

20.21 *Education.* An applicant shall be able to read, speak, and understand the English language, or an appropriate operation limitation shall be placed on his student pilot certificate.

20.21–1 *English language limitations (CAA policies which apply to sec. 20.21).* An applicant not able to meet the requirements of this section will be issued a student pilot certificate with operating limitations as determined by an inspector to be necessary for the safe operation of aircraft. These limitations may be removed when the holder demonstrates to an inspector that he can read, speak, and understand the English language.

(Published in 22 F. R. 5536, effective Aug. 1, 1957.)

20.22 *Physical standards.* An applicant shall hold at least a valid third class medical certificate issued in accordance with the physical standards prescribed in Part 29 of this subchapter.

20.22–1 *Evidence of physical qualifications (CAA policies which apply to sec. 20.22).* A first-, second-, or third-class CAA medical certificate issued within the preceding 24 calendar months will be accepted for the issuance of a student pilot certificate.

(Published in 22 F. R. 5536, effective Aug. 1, 1957.)

20.23 *Requirements for solo flight.* A student pilot shall not operate an airplane in solo flight until:

(a) He is familiar with the general and visual flight rules of Part 60 of this subchapter;

(b) He has received dual instruction in such preparatory and flight procedures as preflight inspection, starting, warming up, operating, and stopping the engine; taxying, take-offs, landings, and parking; traffic pattern procedures; level flight, turns, climbs, and glides; and stalls and emergency landings; and

(c) His student certificate has been endorsed by an appropriately rated flight instructor who has examined him and found him to have complied with the provisions of paragraphs (a) and

(b) of this section and otherwise to be competent to make solo flights.

20.24 *Flight area limitations.* A student pilot shall not operate an airplane in solo flight outside of a local area designated by his flight instructor until:

(a) He is familiar with such flight planning elements as plotting courses, estimating time en route and fuel required, and obtaining and evaluating weather reports;

(b) He has received dual instruction in crosswind and simulated soft-field take-offs and landings; climbing and gliding turns at minimum safe speeds; cross-country navigation by reference to aeronautical charts; conforming with air traffic control instructions furnished by radio or lights, as appropriate; and safe operating practices in simulated emergencies which might occur due to engine failure, loss of flying speed, deteriorating weather, getting lost, and similar critical situations; and

(c) His student pilot certificate has been endorsed by an appropriately rated flight instructor who has found him to have complied with paragraphs (a) and (b) of this section and otherwise to be competent to make solo cross-country flights.

Private

20.30 *Age.* 17 years is the minimum age for the issuance of a private pilot certificate.

20.31 *Education.* An applicant shall be able to read, speak, and understand the English language, or an appropriate operation limitation shall be placed on his pilot certificate.

20.31–1 *English language limitations (CAA policies which apply to sec. 20.31).* An applicant not able to meet the requirements of this section will be issued a private pilot certificate with operating limitations as determined by an inspector to be necessary for the safe operation of aircraft. These limitations may be removed when the holder demonstrates to an inspector that he can read, speak, and understand the English language.

(Published in 22 F. R. 5536, effective Aug. 1, 1957.)

20.32 *Physical standards.* An applicant shall hold at least a valid third class medical certificate issued in accordance with the physical standards prescribed in Part 29 of this subchapter.

20.32–1 *Evidence of physical qualifications (CAA policies which apply to sec. 20.32).* A first-, second-, or third-class CAA medical certificate issued within the preceding 24 calendar months will be accepted for the issuance of a private pilot certificate.

(Published in 22 F. R. 5536, effective Aug. 1, 1957.)

20.33 *Aeronautical knowledge.* An applicant shall pass an examination on the following:

(a) The Civil Air Regulations governing private pilot privileges and limitations, and general operating, air traffic, and accident reporting rules;

(b) The practical aspects of cross country flying, including flight planning, map reading, pilotage, and radio communication procedures;

(c) The recognition of dangerous weather conditions and the evaluation of weather reports; and

(d) General safety practices in the operation of airplanes.

20.33–1 *Aeronautical knowledge (CAA policies which apply to sec. 20.33).* The private pilot written examination will be given by inspectors only.[4]

(Published in 22 F. R. 5536, effective Aug. 1, 1957.)

20.34 *Aeronautical experience.* An applicant shall present his student pilot certificate appropriately endorsed for solo and cross-country flights and meet each of the following minimum flight experience requirements:

(a) 40 hours dual instruction and solo flight time;

(b) 20 hours of solo flight time at least 15 of which shall have been in airplanes;

(c) 10 hours of solo cross-country flight time. Each solo cross-country flight shall include a landing at a point more than 25 miles from the point of departure and at least one flight shall include a landing at a point more than 100 miles from the point of departure; and

[4] The Private Pilot Examination Guide, which gives information on the preparation for the private pilot written examination will be available from local flying school operators or the Government Printing Office, Washington 25, D. C., after July 1, 1957.

(d) 3 hours of dual instruction after the first solo cross-country flight which shall include a review of the procedures and maneuvers previously learned and additional instruction in preparation for the private pilot flight test.

20.34–1 *Recommendation of Flight Instructor (CAA policies which apply to sec. 20.34 (d)).* The written recommendation of an appropriately rated Limited Flight Instructor or a Flight Instructor will be accepted for an application for a private pilot flight test. It is desirable that the 3 hours' dual flight test preparation be given by the instructor who makes the flight test recommendation.

(Published in 22 F. R. 5536, effective Aug. 1, 1957.)

20.35 *Aeronautical skill.* An applicant shall satisfactorily accomplish a practical examination with respect to the following procedures and maneuvers:

(a) Preflight inspection, starting, taxying, and runup check of the airplane before takeoff;

(b) Planning of a cross-country flight to a specified destination, reckoning with weather conditions, fuel requirements, check points, estimated time of arrival, and available alternate airports, and accomplishing such portion of the planned flight, including change of course to an alternate airport, as is necessary to demonstrate proficiency in cross-country flying;

(c) Straight and level flight, left and right medium banked turns, left and right climbing and gliding turns at normal and at minimum controllable speeds, and recovery from power-on and power-off stalls entered from all normally anticipated flight attitudes;

(d) Turns while maintaining a constant radius, or track, around a point, or area, including a 720° turn in each direction in a banked attitude of more than 45°;

(e) Normal and crosswind takeoffs and landings following appropriate traffic control procedures of the airport involved, using power, flaps, and slips at the applicant's discretion for assistance in landing; and

(f) Simulated emergencies, including one short or soft-field takeoff, and one landing, if in single-engine aircraft, with engine throttled and using flaps, slips, or both, for assistance; or, if in multiengine aircraft, in accordance with proper engine-out procedure.

20.35–1 *Private pilot practical examination—airplanes (CAA policies which apply to sec. 20.35).* (a) *Practical examination phases and items.* The practical test will be given in three phases. The failure of any required item in any phase constitutes the failure of that phase and of the whole examination. The whole phase failed must be satisfactorily completed at the time of reapplication.

A practical examination may be discontinued at any time by the examiner or the applicant when the failure of a required item makes the successful completion of the examination impossible. In such cases, credit will be allowed for only whole phases successfully completed.

The applicant will be required to demonstrate the competent performance of the following procedures and maneuvers:

PHASE I—*Oral Operational Examination*

Airplane registration, airworthiness, and equipment documents.

Airplane logbooks and airworthiness inspection reports.

Airplane performance, range, and operation (from Airplane Flight Manual).

Airplane loading, including fuel, oil, and baggage capacities.

Airplane line check.

Use of radio for voice communication (may be simulated when necessary).

PHASE II—*Basic Piloting Technique*

Preflight operations.

Taxiing, or sailing and docking.

Normal and crosswind takeoffs and landings.

Climbs, level flight, and descents at normal speeds and at minimum controllable speeds.

Stalls from all normally anticipated flight attitudes, with and without power.

720° steep turns about a point.

Wheel landings in tailwheel type airplanes, and full stall landings in tricycle type airplanes.

Short field takeoff and power approach and landing.

Soft field takeoff and landing.

Slips and a slip to a landing (if 3-control airplane used).

Emergency operation of airplane equipment.

Engine-out emergencies, if multi-engine airplane used:

Maneuvering with one engine out (feathered if possible).

Engine-out minimum control speed demonstration.

Use of engine-out best rate-of-climb speed.

Effect on engine-out performance of failure to feather, extension of gear and flaps, and combination of these.

Approach and landing with an engine set for zero thrust.

PHASE III—*Cross-Country*

Cross-country flight planning.

Cross-country flying.

Use of radio aids to VFR navigation.[5]

Cross-country emergencies (lost, weather, overheating engine, power failure, etc.).

(b) *Evaluation of performance.* The applicant's performance will be evaluated by the examiner on the basis of the judgment, knowledge, smoothness, and accuracy displayed. A competent performance of a flight maneuver is one in which the pilot is obviously the master of his airplane, and the successful outcome of the maneuver is never seriously in doubt.

(Published in 22 F. R. 5536, effective Aug. 1, 1957.)

Commercial

20.40 *Age.* 18 years is the minimum age for the issuance of a commercial pilot certificate.

20.41 *Education.* An applicant shall be able to read, speak, and understand the English language, or an appropriate operation limitation shall be placed on his pilot certificate.

20.41–1 *English language limitations (CAA policies which apply to sec. 20.41).* An applicant not able to meet the requirements of this section will be issued a commercial pilot certificate with operating limitations as determined by an inspector to be necessary for the safe operation of aircraft. These limitations may be removed when the holder demonstrates to an inspector that he can read, speak, and understand the English language.

(Published in 22 F. R. 5536, effective Aug. 1, 1957.)

[5] For flight tests in areas where radio ranges are not available, the applicant will demonstrate by any means satisfactory to the examiner that he is familiar with the procedure for the use of radio ranges for VFR navigation.

20.42 *Physical standards.* An applicant shall hold at least a valid second class medical certificate issued in accordance with the physical standards prescribed in Part 29 of this subchapter.

20.42–1 *Evidence of physical qualifications (CAA policies which apply to sec. 20.42).* A first- or second-class CAA medical certificate issued within the preceding 12 calendar months will be accepted for the issuance of a commercial pilot certificate.

(Published in 22 F. R. 5536, effective Aug. 1, 1957.)

20.43 *Aeronautical knowledge.* An applicant shall pass a written examination based on the following:

(a) Meteorology, including the recognition of basic weather conditions and trends, and the acquisition and use of weather information disseminated by the U. S. Weather Bureau;

(b) Navigation, including pilotage, dead reckoning, and the use of instruments and radio aids to air navigation;

(c) Principles of safe flight operations, including theory of flight and the operation and maintenance of airplanes and general safety practices and procedures for coping with emergencies and critical situations; and

(d) Civil Air Regulations pertaining to the privileges and limitations of a commercial pilot and the general operating, air traffic, and accident reporting rules.

20.43–1 *Aeronautical knowledge (CAA policies which apply to sec. 20.43).* The commercial pilot written examination will be given by inspectors only.[6]

(Published in 22 F. R. 5536, effective Aug. 1, 1957.)

20.44 *Aeronautical experience.* An applicant shall have acquired at least 200 hours of flight time credited in accordance with section 20.17 and meet each of the following minimum flight experience requirements:

(a) 100 hours in powered aircraft which shall include 50 hours in airplanes of which at least 15 hours shall have been solo;

(b) 100 hours as pilot-in-command, of which 50 hours shall have been cross-country and

[6] The Commercial Pilot Examination Guide, which gives information on the preparation for the commercial pilot written examination, is available from local flying school operators or the Government Printing Office, Washington, D. C., for 75¢.

shall include one round-trip flight of not less than 350 miles in the course of which 3 full-stop landings were made at different points, one of which was at least 150 miles away from the point of departure;

(c) 10 hours of dual instruction in airplanes in preparation for the commercial pilot flight test; and

(d) 10 hours of instrument flight experience which shall include not less than 5 hours of instrument flight instruction given by an instrument flight instructor; the remaining 5 hours may be acquired in flight under simulated instrument conditions accompanied by a safety pilot or in a synthetic trainer approved for instrument flight training: *Provided,* That an applicant who does not meet the instrument flight experience requirements of this paragraph but does meet the other requirements may be issued a commercial pilot certificate in which event the Administrator shall appropriately endorse such certificate to show that the the holder thereof does not meet the instrument flight experience requirements. At such time as the holder of a certificate so endorsed submits reliable documentary evidence to the Administrator that he has met such instrument flight experience requirements, he shall be reissued a certificate without such endorsement.

20.44–1 *Recommendation of Flight Instructor (CAA policies which apply to sec. 20.44 (c)).* The written recommendation of an appropriately rated Limited Flight Instructor or a Flight Instructor will be accepted for an application for a commercial flight test.

(Published in 22 F. R. 5537, effective Aug. 1, 1957.)

20.44–2 *Instrument experience endorsement (CAA policies which apply to sec. 20.44 (d)).* A commercial pilot certificate issued to an applicant who does not meet the experience requirements of section 20.44 (d) will bear the endorsement "Holder does not meet the instrument experience requirements of ICAO." [7]

(Published in 22 F. R. 5537, effective Aug. 1, 1957.)

20.44–3 *Night experience endorsement (CAA policies which apply to sec. 20.44).* A commercial pilot certificate issued to an applicant who does not have at least 5 hours of flight by night including not less than ten takeoffs and ten landings by night as pilot in command and as sole manipulator of the controls will bear the endorsement "Holder does not meet the night flight requirements of ICAO." [7]

(Published in 22 F. R. 5537, effective Aug. 1, 1957.)

20.45 *Aeronautical skill.* An applicant shall competently perform the following maneuvers:

(a) A series of 3 landings from an altitude not to exceed 1,000 feet with engine throttled and a 180° change in direction, the aircraft touching the ground in normal landing attitude beyond the within 200 feet of a designated line or point. At least one landing shall be accomplished from a forward slip;

(b) A spiral in each direction of not less than 3 full turns in a banked attitude of not less than 60°, with engine throttled;

(c) 3 shallow on-pylon figure eights, 3 steep on-pylon figure eights, and one 720° power turn in each direction in a banked attitude of at least 60°. During each of these maneuvers the total variation in altitude shall not exceed 100 feet; and

(d) Straight climbs, climbing turns, slips, maneuvers at minimum controllable speeds, and emergency maneuvers such as simulated forced landings and recovery from power-on and power-off stalls entered from all normally anticipated flight attitudes.

20.45–1 *Commercial pilot flight test—airplanes (CAA policies which apply to sec. 20.45).* (a) *Flight test items.* The commercial pilot flight test is given in 3 phases. The failure of any required item in any phase constitutes the failure of that phase, and of the whole test. The whole phase failed must be satisfactorily completed at the time of reapplication.

A flight test may be discontinued at any time by the examiner or the applicant when the failure of a required item makes the successful completion of the whole test impossible. In such cases, credit will be allowed for only a whole phase successfully completed.

An applicant for a commercial pilot certificate with a rating on airplanes will be required to demonstrate the competent per-

[7] The above endorsements do not restrict nor affect in any way the privileges of the certificate for flight in the United States or its possessions However, they do restrict the holder of the certificate from piloting airplanes commercially in foreign countries (members of ICAO) without specific consent.

formance of the following procedures and maneuvers:

PHASE I—*Oral Operational Examination*

Airplane registration, airworthiness, and equipment documents.

Airplane logbooks and airworthiness inspection reports.

Airplane performance, range, and operation (from Airplane Flight Manual).

Airplane loading, including fuel, oil, and baggage capacities.

Airplane line check.

Use of radio for voice communication (may be simulated when necessary).

PHASE II—*Basic Techniques*

Preflight operations.

Taxiing.

At least three takeoffs with three accuracy landings beyond and within 200 feet of a mark, including:

A slip to a landing (if 3-control airplane used).

Crosswind takeoff and landing.

Short field takeoff and power approach and landing.

Soft field takeoff and landing.

Wheel landings in tailwheel type airplanes, or full stall landings in tricycle type airplanes.

Airport traffic pattern.

Forced landings (single-engine only) and simulated emergencies.

Emergency operation of airplane equipment.

Engine-out emergencies, if multiengine airplane used:

Engine-out minimum control speed demonstration.

Use of engine-out best rate-of-climb speed.

Maneuvering with one engine out (feathered if possible, otherwise cut off and windmilling).

Effect on engine-out performance of failure to feather, extension of gear and flaps, and various combinations of these.

Approach and landing with one engine set to zero thrust.

PHASE III—*Precision Maneuvers*

Gliding spirals about a point on the ground.

Three consecutive shallow on-pylon eights.

Three consecutive steep on-pylon eights.

One right and one left 720° steep power turn.

Lazy eights.

Chandelles.

Maneuvering at minimum controllable airspeed.

Stalls from all normally anticipated flight attitudes with and without power.

(b) *Evaluation of performance.* The applicant's performance will be evaluated on the basis of the judgment, coordination, accuracy, and smoothness displayed. A competent performance of any flight maneuver is one during which the pilot is obviously the master of the airplane, and the successful outcome of the maneuver is never in doubt.

(Published in 22 F. R. 5537, effective Aug. 1, 1957.)

Pilot Certificates; Rotorcraft Rating

Student

20.50 *Age.* 16 years is the minimum age for the issuance of a student pilot certificate. If an applicant is less than 21 years of age and is not a regular or reserve member of the armed forces of the United States or enrolled in an established ROTC or other training program of such armed forces at the time of making application, he shall submit with his application the written consent of either parent or of his legal or natural guardian.

20.50–1 *Minor applicants (CAA policies which apply to sec. 20.50).* The CAA policies and interpretations which apply to minor applicants for student pilot certificates for rotorcraft are identical with those for airplanes under section 20.20.

(Published in 22 F. R. 5537, effective Aug. 1, 1957.)

20.51 *Education.* An applicant shall be able to read, speak, and understand the English language, or an appropriate operation limitation shall be placed on his student pilot certificate.

20.51–1 *English language limitations (CAA policies which apply to sec. 20.51).* An applicant not able to meet the requirements of this section will be issued a student pilot certificate with operating limitations as determined by an inspector to be necessary for the safe operation

of aircraft. These limitations may be removed when the holder demonstrates to an inspector that he can read, speak, and understand the English language.

(Published in 22 F. R. 5537, effective Aug. 1, 1957.)

20.52 *Physical standards.* An applicant shall hold at least a valid third class medical certificate issued in accordance with the physical standards prescribed in Part 29 of this subchapter.

20.52–1 *Evidence of physical qualification (CAA policies which apply to sec. 20.52).* A first-, second-, or third-class CAA medical certificate issued within the preceding 24 calendar months will be accepted for the issuance of a student pilot certificate.

(Published in 22 F. R. 5537, effective Aug. 1, 1957.)

20.53 *Requirements for solo flight.* A student pilot shall not operate a rotorcraft in solo flight until:

(a) He is familiar with the general and visual flight rules of Part 60 of this subchapter;

(b) He has received dual instruction in such preparatory and flight procedures as preflight inspection, starting, warming up, operating, and, stopping the engine; taxiing, takeoffs, hovering, landing, and parking; traffic pattern procedures; and emergency procedures, including engine failure; and

(c) His student certificate has been endorsed by an appropriately rated flight instructor who has examined him and found him to have complied with the provisions of paragraphs (a) and (b) of this section and otherwise to be competent to make solo flights.

20.54 *Flight area limitations.* A student pilot shall not operate a rotorcraft in solo flight outside of a local area designated by his flight instructor until:

(a) He is familiar with such flight planning elements as plotting courses, estimating time en route and fuel required, and obtaining and evaluating weather reports;

(b) He has received dual instruction in pilotage by reference to aeronautical charts; conforming with air traffic control instructions furnished by radio or lights, as apporpriate; and safe operating practices in simulated emergencies which might occur due to engine failure, deteriorating weather, getting lost, and similar critical situations; and

(c) His student pilot certificate has been endorsed by an appropriately rated flight instructor who has found him to have complied with paragraphs (a) and (b) of this section and otherwise to be competent to make solo cross-country flights.

Private

20.60 *Age.* 17 years is the minimum age for the issuance of a private pilot certificate.

20.61 *Education.* An applicant shall be able to read, speak, and understand the English language, or an appropriate operation limitation shall be placed on his pilot certificate.

20.61–1 *English language limitations (CAA policies which apply to sec. 20.61).* A private pilot certificate with a rotorcraft category rating will bear the same limitations prescribed for pilot certificates with airplane ratings by section 20.31–1, when appropriate.

(Published in 22 F. R. 5537, effective Aug. 1, 1957.)

20.62 *Physical standards.* An applicant shall hold at least a valid third-class medical certificate issued in accordance with the physical standards prescribed in Part 29 of this subchapter.

20.62–1 *Evidence of physical qualification (CAA policies which apply to sec. 20.62).* A first-, second-, or third-class CAA medical certificate issued within the preceding 24 calendar months will be accepted for the issuance of a private pilot certificate.

(Published in 22 F. R. 5537, effective Aug. 1, 1957.)

20.63 *Aeronautical knowledge.* An applicant shall pass an examination on the following:

(a) The Civil Air Regulations governing private pilot privileges and limitations, and general operating, air traffic, and accident reporting rules;

(b) The practical aspects of cross-country flying, including flight planning, map reading, pilotage, and radio communication procedures;

(c) The recognition of dangerous weather conditions and the evaluation of weather reports; and

(d) General safety practices in the operation of rotorcraft.

20.63–1 *Aeronautical knowledge (CAA policies which apply to sec. 20.63).* The private pilot written examination will be given by inspectors only.[8]

(Published in 22 F. R. 5537, effective Aug. 1, 1957.)

20.64 *Aeronautical experience.* An applicant shall present his student pilot certificate appropriately endorsed for solo and cross-country flights and meet each of the following minimum flight experience requirements:

(a) 40 hours dual instruction and solo flight time;

(b) 15 hours of solo flight time in rotorcraft; and

(c) 3 hours of solo cross-country flying which shall include a landing at an airport more than 25 miles from the point of departure.

20.64–1 *Recommendation of Flight Instructor (CAA policies which apply to sec. 20.64).* The written recommendation of an appropriately rated Limited Flight Instructor or Flight Instructor will be accepted for an application for a private pilot flight test.

(Published in 22 F. R. 5537, effective Aug. 1, 1957.)

20.65 *Aeronautical skill.* An applicant shall satisfactorily accomplish a practical examination with respect to the maneuvers prescribed by the Administrator appropriate to the type of rotorcraft used.

20.65–1 *Private pilot flight test—rotorcraft (CAA policies which apply to sec. 20.65).* (a) *Flight test items.* The flight test will be given in two phases. The failure of any required item in either phase will constitute the failure of that phase and of the whole test. The whole phase failed must be successfully completed at the time of reapplication.

The flight test may be discontinued at any time by the examiner or the applicant when the failure of a required item makes the successful completion of the test impossible. In such cases, credit will be allowed for only a whole phase successfully completed.

The applicant will be required to demonstrate the competent performance of the following procedures and maneuvers:

PHASE I—*Basic Techniques*

Preflight check and oral equipment examination.

Preflight operations.

Taxiing (if rotorcraft equipped for taxiing on the surface).

Normal and crosswind takeoffs and landings.

High altitude takeoffs and roll-on landings.

Climbs and descents.

Emergencies, including autorotative approaches.

PHASE II—*Precision Manuevers*

Hovering—upwind, downwind, and crosswind.

Hovering turns—180° and 360°, right and left.

Turns with medium banks.

S turns.

Pattern flying with constant heading.

Rapid decelerations (quick stops).

(b) *Evaluation of performance.* The applicant's performance will be evaluated by the examiner on the basis of the judgment, coordination, smoothness, and accuracy displayed. A competent performance of any flight maneuver is one during which the pilot is obviously the master of the aircraft, and the successful outcome of the maneuver is never in doubt.

(Published in 22 F. R. 5537, effective Aug. 1, 1957.)

Commercial

20.70 *Age.* 18 years is the minimum age for the issuance of a commercial pilot certificate.

20.71 *Education.* An applicant shall be able to read, speak, and understand the English language, or an appropriate operation limitation shall be placed on his pilot certificate.

20.71–1 *English language limitations (CAA policies which apply to sec. 20.71).* The English language limitations entered on commercial pilot certificates will be identical with those

[8] The booklet Questions and Answers for Private Pilots gives material to aid in the preparation for the private pilot written examination for rotorcraft, is available from local flying school operators, or from the Government Printing Office, Washington 25, D. C., for 25 cents.

prescribed for commercial pilot certificates by section 20.41–1.

(Published in 22 F. R. 5538, effective Aug. 1, 1957.)

20.72 *Physical standards.* An applicant shall hold at least a valid second-class medical certificate issued in accordance with the physical standards prescribed in Part 29 of this subchapter.

20.72–1 *Evidence of physical qualification (CAA policies which apply to sec. 20.72).* A first- or second-class CAA medical certificate issued within the preceding 12 calendar months will be accepted for the issuance of a commercial pilot certificate.

(Published in 22 F. R. 5538, effective Aug. 1, 1957.)

20.73 *Aeronautical knowledge.* An applicant shall pass a written examination based on the following:

(a) Meteorology, including the recognition of basic weather conditions and trends, and the acquisition and use of weather information disseminated by the U. S. Weather Bureau;

(b) Navigation, including pilotage, dead reckoning, and the use of instruments and radio aids to air navigation;

(c) Principles of safe flight operations, including theory of flight and the operation and maintenance of rotocraft and general safety practices and procedures for coping with emergencies and critical situations; and

(d) Civil Air Regulations pertaining to the privileges and limitations of a commercial pilot and the general operating, air traffic, and accident reporting rules.

20.73–1 *Commercial pilot written examination (CAA policies which apply to sec. 20.73).* The commercial pilot written examination will be given by inspectors only.

(Published in 22 F. R. 5538, effective Aug. 1, 1957.)

20.74 *Aeronautical experience.* An applicant shall have acquired at least 150 hours of flight time credited in accordance with section 20.17 and meet each of the following minimum flight experience requirements:

(a) 100 hours in powered aircraft which shall include 50 hours in rotorcraft of which at least 15 hours shall have been solo;

(b) 100 hours as pilot-in-command, of which 20 hours shall have been cross-country; and

(c) 10 hours of dual instruction in rotorcraft in preparation for the commercial pilot flight test.

20.74–1 *Recommendation of flight instructor (CAA policies which apply to sec. 20.74).* The written recommendation of an appropriately rated Limited Flight Instructor or Flight Instructor will be accepted for the commercial pilot flight test.

(Published in 22 F. R. 8538, effective Aug. 1, 1957.)

20.74–2 *Flight time endorsement (CAA policies which apply to sec. 20.74).* A commercial pilot certificate issued under this section to a pilot who has not logged at least 200 hours of pilot flight time or graduated from a CAA approved commercial rotorcraft pilot training course will bear the endorsement "Holder does not meet the flight time requirements of ICAO."

(Published in 22 F. R. 5538, effective Aug. 1, 1957.)

20.75 *Aeronautical skill.* An applicant shall competently perform the procedures and maneuvers prescribed by the Administrator appropriate to the type of rotorcraft used.

20.75–1 *Commercial pilot flight test—rotorcraft (CAA policies which apply to sec. 20.75).* (a) *Flight test items.* The flight test will be given in two phases. The failure of any required maneuver in either phase will constitute the failure of that phase and of the whole flight test. The phase failed must be successfully completed at the time of reapplication.

A flight test may be discontinued at any time by the examiner or the applicant when the failure of a required item makes the successful completion of the whole test impossible. In such cases, credit will be allowed for only a whole phase successfully completed.

The applicant will be required to demonstrate the competent performance of the following procedures and maneuvers:

PHASE I—*Basic Techniques*

Preflight check and oral equipment examination.

Preflight operations.

Taxiing (in rotorcraft equipped for operation on the surface).

Normal takeoffs and landings.

Crosswind takeoffs and landings.

High altitude takeoff and roll-on landing

Climbs and descents.

Emergencies, including autorotative approaches (landing optional as appropriate).

PHASE II—*Precision Maneuvers*

Hovering upwind, downwind, and crosswind.

Pattern flying with constant and with changing headings.

Hovering turns—180° and 360°, right and left.

S turns.

Turns with medium banks.

Rapid decelerations (quick stops).

(b) *Evaluation of performance.* The applicant's performance will be evaulated by the examiner on the basis of the judgment, coordination, smoothness, and accuracy demonstrated. A competent performance is one during which the pilot is obviously master of the aircraft, and the successful outcome of the maneuver is never in doubt.

(Published in 22 F. R. 5538, effective Aug. 1, 1957.)

Pilot Certificates; Glider Rating

Student

20.80 *Age.* 14 years is the minimum age for the issuance of a student pilot certificate. If an applicant is less than 21 years of age and is not a regular or reserve member of the armed forces of the United States or enrolled in an established ROTC or other training program of such armed forces at the time of making application, he shall submit with his application the written consent of either parent or of his legal or natural guardian.

20.80–1 *Applicants under 16 years of age (CAA policies which apply to sec. 20.80).* A student pilot certificate issued to an applicant who is under 16 years of age will bear the limitation "Gliders only."

(Published in 22 F. R. 5538, effective Aug. 1, 1957.)

20.80–2 *Minor applicants (CAA policies which apply to sec. 20.80).* The CAA policies and interpretations applicable to the age requirements for student pilot certificates for airplanes under section 20.20 apply to applicants for student pilot certificates for gliders.

(Published in 22 F. R. 5538, effective Aug. 1, 1957.)

20.81 *Education.* An applicant shall be able to read, speak, and understand the English language, or an appropriate operation limitation shall be placed on his student pilot certificate.

20.81–1 *English language limitations (CAA policies which apply to sec. 20.81).* An applicant not able to meet the requirements of this section will be issued a student pilot certificate with operating limitations as determined by an inspector to be necessary for the safe operation of aircraft. These limitations may be removed when the holder demonstrates to an inspector that he can read, speak, and understand the English language.

(Published in 22 F. R. 5538, effective Aug. 1, 1957.)

20.82 *Physical standards.* An applicant shall certify that he has no known physical defect which renders him incompetent to pilot a glider.

20.82–1 *Evidence of physical qualification (CAA policies which apply to sec. 20.82).* A first- second- or third-class CAA medical certificate issued within the preceding 24 calendar months, or the applicant's statement on his application that he has no known physical defect which renders him incompetent to pilot gliders will be accepted for the issuance of a student pilot certificate. An applicant who certifies his own physical condition will receive a student pilot certificate with the limitation "Gliders only."

(Published in 22 F. R. 5538, effective Aug. 1, 1957.)

20.83 *Requirements for solo flight.* A student pilot shall not operate a glider in solo flight until:

(a) He is familiar with the general and visual flight rules of Part 60 of this subchapter and the procedure to follow in conducting preflight inspections:

(b) He has received flight instruction in takeoffs, landings, glides, and gliding turns; and recovery from stalls entered from all normally anticipated flight attitudes; and

(c) His student certificate has been endorsed by an appropriately rated flight instructor or commercial pilot with a glider rating who has examined him and found him to have complied with the provisions of paragraphs (a) and (b) of this section and otherwise to be competent to make solo flights.

20.84 *Flight area limitations.* A student pilot shall not operate a glider in solo flight

outside of a local area designated by his flight instructor until:

(a) He is familiar with obtaining and evaluating weather reports;

(b) He has received flight instruction in cross-country navigation by reference to aeronautical charts; and

(c) His student pilot certificate has been endorsed by an appropriately rated flight instructor or commercial pilot with a glider rating who has found him to have complied with paragraphs (a) and (b) of this section and otherwise to be competent to make solo cross-country flights.

Private

20.90 *Age.* 16 years is the minimum age for the issuance of a private pilot certificate.

20.90–1 *Applicants under 17 years of age (CAA policies which apply to sec. 20.90).* A private pilot certificate with a glider category rating issued to an applicant who is under 17 years of age will bear the limitation "Gliders only."

(Published in 22 F. R. 5538, effective Aug. 1, 1957.)

20.91 *Education.* An applicant shall be able to read, speak, and understand the English language, or an appropriate operation limitation shall be placed on his pilot certificate.

20.91–1 *English language limitation (CAA policies which apply to sec. 20.91).* An applicant not able to meet the requirements of this section will be issued a private pilot certificate with operating limitations as determined by an inspector to be necessary for the safe operation of aircraft. These limitations may be removed when the holder demonstrates to an inspector that he can read, speak, and understand the English language.

(Published in 22 F. R. 5538, effective Aug. 1, 1957.)

20.92 *Physical standards.* An applicant shall certify that he has no known physical defect which renders him incompetent to pilot a glider.

20.92–1 *Evidence of physical qualification (CAA policies which apply to sec. 20.92).* A first-, second-, or third-class CAA medical certificate issued within the preceding 24 calendar months, or the applicant's statement on his application that he has no known physical defect which renders him incompetent to pilot a glider will be accepted for the issuance of a private pilot certificate with a glider rating. An applicant who certifies his own physical condition will receive a private pilot certificate bearing the limitation "Gliders only."

(Published in 22 F. R. 5538, effective Aug. 1, 1957.)

20.93 *Aeronautical knowledge.* An applicant shall pass an examination on the following:

(a) The Civil Air Regulations governing private pilot privileges and limitations, and general operating, air traffic, and accident reporting rules;

(b) The practical aspects of cross-country flying;

(c) The recognition of dangerous weather conditions and the evaluation of weather reports; and

(d) General safety practices in the operation of gliders.

20.93–1 *Written examination (CAA policies which apply to sec. 20.93).* The private pilot written examination will be given by inspectors only.[9]

(Published in 22 F. R. 4538, effective Aug. 1, 1957.)

20.94 *Aeronautical experience.* An applicant shall present his student pilot certificate appropriately endorsed for solo and cross-country flights and meet each of the following minimum flight experience requirements:

(a) 100 glider flights which shall include 25 flights during each of which a 360° turn was made; or 10 hours of glider flight time which shall include 50 glider flights or 30 flights if flight training has been accomplished using aero tows; or 3 hours dual instruction in light airplanes directed toward glider training and 7 hours of glider flight time which shall include 50 gliding flights; and

(b) One hour of flight instruction in recovery from stalls entered from all normally anticipated flight attitudes.

[9] The booklet Questions and Answers for Private Pilots, which gives information for use in preparing for the Private Glider pilot written examination, is available from local flying school operators or from the Government Printing Office, Washington 25, D. C., for 25 cents.

20.94–1 *Stall instruction for private glider pilot certificates (CAA policies which apply to sec. 20.94 (b)).* The required flight instruction in stalls may be obtained either in gliders or in powered airplanes. If such instruction is given in an airplane, it must be given by a Limited Flight Instructor or a Flight Instructor with an Airplane Instructor rating.

(Published in 22 F. R. 5538, effective Aug. 1, 1957.)

20.95 *Aeronautical skill.* An applicant shall demonstrate a satisfactory level of competence in the following procedures and maneuvers:

(a) Preparatory flight procedures;

(b) At least 2 flights, of which one shall include a 360° approach to the left and one a 360° approach to the right, landing each time beyond and within 200 feet of a designated point or line; and

(c) Recovery from stalls entered from all normally anticipated flight attitudes.

20.95–1 *Private pilot flight test—gliders (CAA policies which apply to sec. 20.95).* (a) *Flight test items.* The flight test will be given in two phases. The failure of a required item in either phase will constitute the failure of that phase and of the whole test. The whole phase failed must be satisfactorily completed at the time of reapplication.

The flight test may be discontinued at any time by the examiner or the applicant when the failure of a required item makes the successful completion of the test impossible. In such cases, credit will be allowed for only a whole phase successfully completed.

The applicant will be required to demonstrate the competent performance of the following maneuvers and procedures:

PHASE I—*Basic Techniques*

Preflight check and oral equipment examination.

Preflight operations.

Auto, pulley, or winch tow; or airplane tow.

360° approaches, right and left, landing within 200 feet beyond a line or mark.

PHASE II—*Special Maneuvers*

Stalls and slow flight (must be demonstrated in a glider).

(b) *Evaluation of performance.* The applicant's performance will be evaluated by the examiner on the basis of judgment, coordination, smoothness, and accuracy demonstrated. A competent performance is one during which the pilot is obviously the master of the aircraft, and the successful outcome of the maneuver is never seriously in doubt.

(Published in 22 F. R. 5538, effective Aug. 1, 1957.)

Commercial

20.100 *Age.* 18 is the minimum age for the issuance of a commercial pilot certificate.

20.101 *Education.* An applicant shall be able to read, speak, and understand the English language, or an appropriate operation limitation shall be placed on his pilot certificate.

20.101–1 *English language limitations (CAA policies which apply to sec. 20.101).* An applicant not able to meet the requirements of this section will be issued a commercial pilot certificate with operating limitations as determined by an inspector to be necessary for the safe operation of aircraft. These limitations may be removed when the holder demonstrates to an inspector that he can read, speak, and understand the English language.

(Published in 22 F. R. 5538, effective Aug. 1, 1957.)

20.102 *Physical standards.* An applicant shall certify that he has no known physical defect which renders him incompetent to pilot a glider.

20.102–1 *Evidence of physical qualification (CAA policies which apply to sec. 20.102).* A first-, second-, or third-class CAA medical certificate issued within the preceding 24 calendar months, or the applicant's statement on his application form that he has no known physical defect which renders him incompetent to pilot a glider will be accepted for the issuance of a commercial pilot certificate with a glider category rating. An applicant who certifies his own physical condition will receive a commercial pilot certificate bearing the limitation "Gliders only."

(Published in 22 F. R. 5539, effective Aug. 1, 1957.)

20.103 *Aeronautical knowledge.* An applicant shall pass a written examination based on the following:

(a) Meteorology, including the recognition of basic weather conditions and trends, and the acquisition and use of weather information disseminated by the U. S. Weather Bureau;

(b) Navigation, including pilotage and the use of navigational instruments;

(c) Principles of safe flight operations, including theory of flight and the operation and maintenance of gliders; and

(d) Civil Air Regulations pertaining to the privileges and limitations of a commercial pilot and the general operating, air traffic, and accident reporting rules.

20.103-1 *Commercial glider written examination (CAA policies which apply to sec. 20.103).* The commercial glider pilot written examination will be given by inspectors only.

(Published in 22 F. R. 5439, effective Aug. 1, 1957.)

20.104 *Aeronautical experience.* An applicant shall have acquired at least 25 hours flight time credited in accordance with section 20.17 and meet the following minimum experience requirements:

(a) 20 hours flight time in gliders;

(b) 2 hours of flight instruction in gliders in preparation for the commercial pilot flight test;

(c) 100 flights in gliders as pilot in command; and

(d) 25 glider flights with 360° right and left approaches.

20.105 *Aeronautical skill.* An applicant shall demonstrate a satisfactory level of competence in the following procedures and maneuvers:

(a) Preparatory flight procedures;

(b) At least 2 flights, of which one shall include a 360° approach to the left and one a 360° approach to the right, landing each time beyond and within 100 feet of a designated point or line;

(c) A spiral in each direction of at least 3 full turns in a banked attitude of at least 45°;

(d) A glider flight when towed by an airplane during climb, and when above, below, and to one side of the slipstream during level flight;

(e) A glider flight when launched by an automobile or winch; and

(f) Recovery from stalls entered from all normally anticipated flight attitudes.

20.105-1 *Commercial pilot flight test—gliders (CAA policies which apply to sec. 20.105).* (a) *Flight test items.* The flight test will be given in two phases. The failure of any required item in either phase constitutes the failure of that phase and of the whole test. The whole phase failed must be satisfactorily completed at the time of reapplication.

A flight test may be discontinued at any time by the examiner or the applicant when the failure of a required item makes the successful completion of the test impossible. In such cases, credit will be allowed for only a whole phase successfully completed.

The applicant will be required to demonstrate the competent performance of the following procedures and maneuvers:

PHASE I—*Basic Techniques*

Preflight check and oral equipment examination.

Preflight operations.

Auto, pulley, or winch tow.

Airplane tow; above, below, and to one side of slipstream.

360° approaches, right and left, landing within 100 feet beyond a line or mark.

PHASE II—*Special Maneuvers*

3-turn spirals, right and left, with bank at least 45°.

Stalls and slow flight (must be demonstrated in a glider).

(b) *Evaluation of performance.* The applicant's performance will be evaluated by the examiner on the basis of the judgment, coordination, smoothness, and accuracy demonstrated. A competent performance is one during which the pilot is obviously the master of his aircraft, and the successful outcome of the maneuver is never in doubt.

(Published in 22 F. R. 5539, effective Aug. 1, 1957.)

Special Issuance of Pilot Certificates

20.110 *Graduates of certificated flying schools.* (a) A graduate of a certificated flying school shall be deemed to have met the aeronautical experience requirements of this part if he presents an appropriate certificate of graduation within 60 days after his graduation date: *Provided,* That an applicant for an instrument rating or a limited flight instructor

certificate shall meet the prescribed aeronautical experience requirements for the issuance of a commercial pilot certificate.

(b) The Administrator may issue a private or commercial pilot or limited flight instructor certificate or an instrument or aircraft rating without further showing of competence to an applicant who has graduated from an approved course of a certificated flying school within the preceding 90 days if the Administrator finds that the aeronautical knowledge and skill requirements of such course are the equivalent of those prescribed in this part.

20.110–1 *Acceptance of examinations and tests given by certificated flying schools (CAA policies which apply to sec. 20.110 (b)).* Pilot certificates and ratings will be issued without written or flight tests to qualified applicants who have graduated within the preceding 90 days from flying schools which have been rated by the CAA as Airman Examining Agencies.

(Published in 22 F. R. 5539, effective Aug. 1, 1957.)

20.111 *Military competence.* (a) *Pilot certificates.* An applicant for a private or commercial pilot certificate shall be deemed to have met the requirements for the issuance of such certificate if he passes a written examination on the Civil Air Regulations pertaining to pilot privileges and limitations, general operating, air traffic, and accident reporting rules, and presents reliable evidence that:

(1) He is a member of the armed forces of the United States, the National Guard, or the Coast Guard or any reserve component thereof and either is on solo flying status as a rated pilot or the equivalent, or has been graduated from and rated as a pilot or the equivalent by a military flying school within the preceding 12 months; or

(2) He has been honorably discharged from the armed forces, the National Guard, or the Coast Guard within the preceding 12 months, and was at the time of discharge on solo flying status as a rated pilot or the equivalent: *Provided,* That if he has been honorably discharged for a period longer than 12 months preceding the date of application, he shall be required to meet the prescribed physical standards and pass the appropriate flight test.

(b) *Aircraft category, class, and type ratings.* An applicant for a particular category, class, or type rating who has applied for or holds a pilot certificate issued on the basis of military competence or otherwise shall be issued appropriate ratings upon the presentation of reliable documentary evidence that he has had, within 12 months preceding the date of application, at least 10 hours of flight time as pilot-in-command in military aircraft of a category, class, or type for which the rating is sought, or has passed an appropriate CAA or military flight test.

(c) *Instrument rating.* An instrument rating shall be issued to a private or commercial pilot who holds a currently effective military instrument rating.

20.111–1 *Acceptable evidence of military status and experience (CAA policies which apply to sec. 20.111).* (a) *Membership.* An official identification card issued by the service showing that the holder is a member of the Armed Forces of the United States, the National Guard, the Coast Guard, or any reserve component thereof will be accepted as evidence of membership.

(b) *Solo flying status as a rated pilot.* Acceptable documentary evidence of flight status shall consist of (1) official orders to solo flight status, (2) USAF Form 5 or a USN flight logbook properly endorsed to show solo flight status, (3) official orders showing graduation from and rating as a pilot by a military flying school, or (4) a copy of orders showing duty involving flying as a rated pilot.

(c) *Honorable discharge.* An original or photostatic copy of a certificate of discharge from the U. S. Armed Forces will be accepted as evidence of discharge or release. Persons discharged from the service or removed from flight status for reasons of flight deficiency, "for the good of the service," or as the result of disciplinary action will not be issued pilot certificates on the basis of military competence.

(d) *Pilot experience.* Documentary evidence of pilot flight time shall consist of USAF Forms 5 or Form 5 summaries, or certified military logbooks, Pilot-in-command flight time in air-

craft which normally have two pilots should be substantiated by official checkout records.

(Published in 22 F. R. 5539, effective Aug. 1, 1957.)

20.111–2 *Flight test for aircraft rating (CAA interpretations which apply to sec. 20.111 (b)).* The flight test required by section 20.111 (b) is an official military checkout as first pilot in the aircraft concerned, or the CAA flight test prescribed by section 20.121 (a) (2) or (b) (2).

(Published in 22 F. R. 5539, effective Aug. 1, 1957.)

20.111–3 *Acceptable military instrument cards (CAA policies which apply to sec. 20.111 (b)).* Any military instrument card will be accepted as the basis for the issuance of an instrument rating, until the date of expiration shown on the card.

(Published in 22 F. R. 5539, effective Aug. 1, 1957.)

20.112 *Foreign pilot certificates.* (a) An applicant for a pilot certificate who holds a currently effective pilot certificate issued by a foreign government may receive credit for his flight experience and for those examinations and tests, completed in securing his pilot certificate, which the Administrator finds to be at least the equivalent of those required in the Civil Air Regulations for the issuance of a comparable U. S. pilot certificate.

(b) A pilot certificate with appropriate limitations may be issued for a specific purpose to an applicant who is a citizen of a foreign country and holds a currently effective pilot license issued by his government upon submitting to the Administrator reliable evidence of his aeronautical experience and passing an examination on the air traffic rules contained in Part 60 of this subchapter. The Administrator shall limit the duration of the certificate to not more than 90 days and may prescribe such additional limitations as he finds necessary for safety.

20.112–1 *Recognition of foreign examinations and tests (CAA policies which apply to sec. 20.112 (a)).* The holder of a foreign pilot certificate may receive credit for examinations and tests listed in Appendix B upon presenting evidence acceptable to the inspector that he has passed the examinations and tests for which credit is sought. Applicants who seek credit for foreign pilot examinations and tests not listed should forward their requests direct to the General Safety Division, Civil Aeronautics Administration, Washington 25, D. C.

(Published in 22 F. R. 5539, effective Aug. 1, 1957.)

20.112–2 *Special Purpose Pilot Certificates (CAA policies which apply to sec. 20.112 (b)).* (a) *Certificate and ratings.* A certificate issued on the basis of a valid foreign pilot certificate will be a Special Purpose Pilot Certificate, showing clearly the operations which it authorizes.

The aircraft ratings contained will be based on the ratings appearing on the foreign pilot certificate presented. If the foreign certificate bears no such rating, ratings will be given for the aircraft which the applicant has flown at least 10 hours as pilot-in-command within the preceding 12 months. Additional aircraft ratings may be added to such certificates upon compliance with the requirements of this part for such ratings.

Instrument ratings will not be issued in connection with Special Purpose Pilot Certificates.

(b) *Examination.* The examination on air traffic rules may be written or oral, at the discretion of the inspector accepting the application.

(c) *Physical standards.* The applicant will present evidence of currently meeting the physical requirements of his own country, or may present a current CAA Medical Certificate of a grade appropriate to the certificate sought.

(d) *Limitations.* (1) Each such pilot certificate will bear a notation showing the basis on which it is issued, and will be limited to the specific purpose for which it is issued. Examples of such purposes are: Ferry flights of new aircraft for export, the operation of U. S. registered aircraft in foreign countries, and flights for the maintenance of proficiency in the United States. Requests for such certificates for other specific purposes will be forwarded to Washington for an individual determination.

A certificate issued to a foreign pilot who is unable to read, speak, and understand the English language will bear such additional limitations as the issuing inspector deems necessary for safety.

(Published in 22 F. R. 5539, effective Aug. 1, 1957.)

Aircraft and Instrument Ratings

Aircraft Ratings

20.120 *Aircraft ratings.* Aircraft ratings issued to private and commercial pilots shall be classified as follows:

(a) *Category ratings.* (1) Airplane.

(2) Rotorcraft.

(3) Glider.

(b) *Airplane class ratings.* (1) Single-engine land.

(2) Multiengine land.

(3) Single-engine sea.

(4) Multiengine sea.

(c) *Type ratings.* Each type of aircraft having a maximum certificated take-off weight of more than 12,500 pounds.

20.120–1 *Helicopter category ratings (CAA interpretations which apply to sec. 20.120 (a) (2)).* A helicopter rating entered on a pilot certificate prior to September 1, 1957, will be accepted as the equivalent of the rotorcraft rating established by section 20.120 (a) (2).

(Published in 22 F. R. 5539, effective Aug. 1, 1957.)

20.121 *Additional aircraft ratings.* An applicant for an additional aircraft rating subsequent to the original issuance of a private or commercial pilot certificate shall meet the following requirements:

(a) *Category rating.* An applicant for an additional category rating shall:

(1) Meet all the aeronautical experience requirements for the original issuance of his grade of certificate with the category rating sought; and

(2) Pass an appropriate flight test.

(b) *Class or type rating.* An applicant for an additional class or type rating shall:

(1) Have made at least 5 takeoffs and landings as pilot-in-command and sole manipulator of the controls of an aircraft of the class or type for which a rating is sought; and

(2) Pass an appropriate flight test.

20.121–1 *Flight tests for additional ratings (CAA policies which apply to sec. 20.121).* The flight test required for an additional aircraft rating will include all procedures, maneuvers, and techniques not required for the pilot certificate and ratings already held.

(Published in 22 F. R. 5539, effective Aug. 1, 1957.)

Instrument Rating

20.125 *Issuance.* An instrument rating shall be issued to a private or commercial pilot who meets the prescribed aeronautical knowledge, experience, and skill requirements.

20.126 *Aeronautical knowledge.* An applicant shall pass a written examination based on the following:

(a) Civil Air Regulations as they apply to flight under IFR conditions;

(b) Radio navigation systems and procedures, instrument landing systems and procedures, and radio communication procedures; and

(c) Meteorology, including the characteristics of air masses and fronts and the weather associated with them; the elementary principles of forecasting; and the availability, evaluation, and utilization of the various types of meteorological reports.

20.126–1 *Instrument written examination (CAA policies which apply to sec. 20.126).* The instrument rating written examination is given by inspectors only.[10]

(Published in 22 F. R. 5539, effective Aug. 1, 1957.)

20.127 *Aeronautical experience.* An applicant shall meet the following minimum flight experience requirements:

(a) He shall hold a commercial pilot certificate or a private pilot certificate and meet the aeronautical experience requirements for the issuance of a commercial pilot certificate; and

(b) He shall have acquired 40 hours of instrument time under actual or simulated instrument conditions, of which not less than 20 hours shall have been in flight and have included 10 hours of instrument flight instruction given by a rated instrument flight instructor.

20.127–1 *Instrument flight instruction (CAA interpretations which apply to sec. 20.127 (b)).* A "rated instrument flight instructor" as used in this section means the holder of a Limited Flight Instructor or a Flight Instructor Certificate, with an Instrument Instructor rating.

(Published in 22 F. R. 5539, effective Aug. 1, 1957.)

[10] The Instrument Written Examination Guidebook, which gives information for use in preparing for the instrument rating written examination will be available from local flying schools, or from the Government Printing Office, Washington 25, D. C., after July 1, 1957.

20.127–2 *Recommendation of Flight Instructor (CAA policies which apply to sec. 20.127).* The written recommendation of a Limited Flight Instructor, or a Flight Instructor, with an instrument instructor rating will be accepted for the instrument rating flight test.

(Published in 22 F. R. 5540, effective Aug. 1, 1957.)

20.128 *Aeronautical skill.* An applicant shall demonstrate a satisfactory level of competence in the following procedures and maneuvers:

(a) Flight maneuvers, solely by reference to instruments, including recovery from critical attitudes such as steep turns, spirals, and stalls using the minimum instrumentation prescribed for instrument flight in Part 43 of this subchapter.

(b) Planning and conducting a simulated instrument flight including:

(1) Preparing and filing an instrument flight plan;

(2) Radio navigation including orientation;

(3) Radio communications;

(4) A standard instrument approach complying with traffic control instructions and standard holding procedures; and

(5) Recovery from emergency situations such as a missed approach, radio or instrument failure, and failure of an engine if the test is conducted in a multiengine airplane.

20.128–1 *Instrument rating flight test (CAA policies which apply to sec. 20.128).* (a) *Flight test items.* The instrument rating flight test will be given in aircraft in which instrument flight is authorized by the regulations and the aircraft's equipment and operating limitations. All aircraft used for instrument flight tests shall have a hood, slats, polarized material, or other effective means of excluding outside visual reference from the pilot tested. The effectiveness of the means or device used shall be demonstrated to the satisfaction of the examiner.

The flight test will be given in three phases. The failure of any required item in any phase will constitute the failure of that phase and of the whole test. The whole phase must be satisfactorily completed at the time of reapplication.

A flight test may be discontinued at any time by the examiner or the applicant when the failure of a required item makes the successful completion of the test impossible. In such cases, credit will be allowed for only each whole phase successfully completed.

The applicant will be required to demonstrate the competent performance of the following procedures and flight maneuvers by reference to flight instruments.

PHASE I—*Oral Operational Examination*

Instrument flight planning.

Preparing and filing an instrument flight plan.

Aircraft performance, range, and fuel requirements.

Required instrumentation and equipment, and their proper use.

PHASE II—*Instrument Flying*

Straight and level flight. [11]

Turns, climbs, and descents.[11]

Stalls, and maneuvering at approach speeds.

Steep turns.

Recovery from unusual attitudes.[11]

Engine-out procedures, if test is given in multiengine airplane.

PHASE III—*Radio Navigation and Approach Procedures*

Radio navigation, including orientation using LF, OMNI range, or ADF.

Use of radio for voice communication.

Standard instrument approach to authorized IFR weather minimums (not more than 500 feet and 1 mile), including holding procedures.

Missed approach procedures.

Emergencies, such as radio or instrument malfunctions.

Compliance with airways traffic control instructions and procedures.

(b) *Evaluation of performance.* The applicant's performance will be evaluated on the basis of the judgment, smoothness, and accuracy displayed. Significant errors on the dangerous side will be disqualifying. Any error which make it necessary for the examiner to take over to avoid violating the aircraft's operating limitations, a loss of control, or

[11] Maneuvers will be required with the use of the needle, ball, and airspeed only.

collision with the ground will be disqualifying, and no second attempt will be allowed.

(Published in 22 F. R. 5540, effective Aug. 1, 1957.)

Flight Instructor Certificates

20.130 *Limited flight instructor certificates.* A limited flight instructor certificate with appropriate ratings shall be issued to an applicant who meets the following requirements:

(a) He shall hold a valid airline transport or commercial pilot certificate of if he holds a private pilot certificate he shall meet the aeronautical knowledge, experience, and skill requirements for the issuance of a commercial pilot certificate;

(b) He shall demonstrate in each category of aircraft in which he desires to give flight instruction his ability to teach the performance of such flight maneuvers and procedures as are necessary and appropriate for the safe piloting of that category of aircraft; and

(c) He shall show that he is familiar with effective flight instruction methods and procedures as set forth in the CAA Flight Instruction Manual; or

(d) He shall demonstrate his ability to give instrument flight instruction if he desires to be rated as an instrument flight instructor.

20.130–1 *Limited flight instructor certificates (CAA policies which apply to sec. 20.130).* (a) *Certificate and ratings.* The Limited Flight Instructor Certificate, will bear the same number as the holder's pilot certificate, and one or more of the following flight instructor ratings as appropriate:

(1) Airplanes.
(2) Rotorcraft.
(3) Gliders.
(4) Instrument.

(b) *Written examination.* (1) An applicant for a Limited Flight Instructor Certificate with a category rating will be given a written examination covering: (i) The "Fundamentals of Flight Instruction" and (ii) the "Performance and Analysis of Flight Training Maneuvers" appropriate to the instructor rating sought.

(2) A Limited Flight Instructor who applies for an additional instructor rating will be given the section of the written examination on the "Performance and Analysis of Flight Training Maneuvers" appropriate to the additional rating sought.

(c) *Practical test.* An applicant for a Limited Pilot Certificate will be given an oral examination and flight test to determine his proficiency in giving accurate, effective flight instruction. The applicant will be required to perform flight training maneuvers accurately; to detect, correct, and explain simulated student errors committed by the examiner. Flight instructor practical tests are given by inspectors only.

(d) *Instructor practical test items.* The flight instructor practical test will include the following items:

(1) *Oral examination—all ratings.*

Application of effective flight instruction methods.

Knowledge of safe flying practices and principles.

Correctness and clarity of explanations.

Recognition of student errors (in flight and in postflight discussion).

Cross-country flight planning.

(2) *Flight test—airplanes.*

Preflight check and oral equipment examination.

Preflight operations.

Taxiing, or sailing and docking.

Straight flight and turns in climbs, glides, and level flight.

Normal takeoffs and accuracy landings.

Crosswind takeoffs and landings.

Short field takeoff and power approach with landing.

Soft field takeoff and landing.

Slips to landings.

Wheel landings in tailwheel type airplanes, or full stall landings in tricycle types.

Stalls from all normally anticipated flight attitudes, with and without power.

Maneuvering with minimum controllable airspeed.

Spins, right and left.

720° power turns.

Chandelles.

Lazy eights, shallow and steep.

Pylon eights, shallow and steep.

Airport traffic patterns—rectangular courses and S-turns.

Use of radio for voice communication—traffic control procedures.

Emergency operation of airplane equipment; forced landings.

(3) *Flight test—rotorcraft.*[12]

Preflight check and oral equipment examination.

Preflight operations.

Taxiing (if rotorcraft used is appropriately equipped).

Normal takeoffs and landings.

Crosswind takeoffs and landings.

High altitude takeoffs and roll-on landings.

Climbs and descents.

Hovering—upwind, crosswind, and downwind.

Hovering 360° turns.

Pattern flying with constant and with changing headings.

S-turns.

Rapid decelerations.

Autorotative landings.

Emergency operation of rotorcraft equipment.

(4) *Flight test—gliders.*

Preflight check and oral equipment examination.

Preflight operations.

Auto, pulley, or winch tow.

Airplane tow—above, below, and to one side of slipstream.

360° approaches, right and left, landing within 100 feet beyond a line.

3-turn spirals, right and left, at banks of at least 45°.

Stalls and slow flight.

Spins, right and left.

(5) *Flight test—instrument.*

Instrument flight planning.

Preparing and filing an instrument flight plan.

Aircraft performance, range, and fuel requirements.

Required instrumentation and equipment, and their proper use.

Straight and level flight. [13]

Turns, climbs, and descents.[13]

Stalls, and maneuvering at approach speeds.

Steep turns.

Recovery from unusual attitudes.[13]

Engine-out procedures, if test is given in multiengine airplane.

Radio navigation, including orientation using LF, OMNI range, or ADF.

Use of radio for voice communication.

Standard instrument approach to authorized IFR weather minimums (not more than 500 feet and 1 mile), including holding procedures.

Missed approach procedures.

Emergencies, such as radio or instrument malfunctions.

Compliance with airways traffic control instructions and procedures.

(Published in 22 F. R. 5540, effective Aug. 1, 1957.)

20.130–2 *Recommendation of Flight Instructor (CAA policies which apply to sec. 20.130).* The written recommendation of a Flight Instructor (not Limited Flight Instructor) with an appropriate aircraft category or instrument instructor rating will be accepted for the Limited Flight Instructor flight test.

(Published in 22 F. R. 5540, effective Aug. 1, 1957.)

20.131 *Renewal and reissuance.* A limited flight instructor certificate shall expire 24 calendar months after date of issuance but may be renewed or reissued upon presentation to the Administrator of a satisfactory flight instruction record or upon a practical demonstration of continued competence.

20.131–1 *Satisfactory flight instruction record (CAA policies which apply to sec. 20.131).* The inspector will determine the acceptability of a Limited Flight Instructor's flight instruction record on the basis of his continued maintenance of recent instruction experience requirements, the successful performance of applicants recommended for flight tests, and the accident record achieved by the instructor and his students.

(Published in 22 F. R. 5540, effective Aug. 1, 1957.)

20.135 *Flight instructor certificates.* A flight instructor certificate with appropriate ratings shall be issued to an applicant who meets the following requirements:

(a) He has held a limited flight instructor certificate for a period of at least one year;

[12] Autogiro applicants will fly the test prescribed for airplanes so far as is possible in the aircraft used.

[13] Maneuvers will be required with the use of the needle, ball, and airspeed only.

(b) He has trained at least 5 successful candidates for pilot certificates or instrument ratings; and

(c) He has demonstrated his competence in giving flight instruction as evidenced by the ability of his students to maintain a satisfactory level of flight safety while under his supervision and to pass the certification and rating tests for which he has prepared them.

20.135–1 *Candidates trained by a Limited Flight Instructor (CAA policies which apply to sec. 20.135 (b)).* To qualify as one of the required five candidates trained by an applicant for a Flight Instructor certificate, a student must have received all of his required dual flight test preparation [14] and a written recommendation for the flight test from the Limited Flight Instructor making application.

(Published in 22 F. R. 5541, effective Aug. 1, 1957.)

20.135–2 *Additional flight instructor category ratings (CAA policies which apply to sec. 20.135).* The holder of a Flight Instructor certificate may qualify for and obtain additional flight instructor category ratings by passing the written examination on the "Performance and Analysis of Flight Training Maneuvers" and practical test appropriate to the rating sought.

(Published in 22 F. R. 5541, effective Aug. 1, 1957.)

20.136 *Flight Instruction Records.* A flight instructor or limited flight instructor shall comply with the following:

(a) He shall sign the student pilot's record for each period of flight instruction;

(b) He shall make a record containing the name of the each student pilot whose certificate he has endorsed and to whom he has given flight instruction, the type of endorsement, and the date of each endorsement or flight instruction period, such record to be retained so long as he exercises the privileges of his flight instructor's certificate or 3 years, whichever is the shorter period of time.

20.136–1 *Flight instruction records (CAA policies which apply to sec. 20.136 (b)).* The required flight instruction records may be kept separately, or in the instructor's own pilot logbook.

(Published in 22 F. R. 5541, effective Aug. 1, 1957.)

20.137 *Limited flight instructor limitations.* A pilot certificate or instrument rating will be issued to a student trained by the holder of a limited flight instructor certificate only after such student has passed a flight test given by a CAA inspector.

20.137–1 *Applicants trained by Limited Flight Instructors (CAA policies which apply to sec. 20.137).* An applicant for a pilot certificate or rating who has received his required dual flight test preparation and flight test recommendation from a Limited Flight Instructor must take his flight test from an inspector. An applicant who has obtained his dual flight test preparation and flight test recommendation from a Flight Instructor may take his flight test from an inspector or a designated pilot examiner.

(Published in 22 F. R. 5541, effective Aug. 1, 1957.)

20.138 *Validity and exchange of flight instructor ratings.* The holder of a flight instructor rating may exercise the privileges of such rating until July 1, 1958. Prior to this date he may exchange such rating for a flight instructor certificate without further showing of competence. After July 1, 1958, the holder of a flight instructor rating shall not exercise the privileges of such rating but he may exchange it for a flight instructor certificate upon demonstrating continued competence to give flight instructions.

20.138–1 *Exchange of Flight Instructor ratings for Flight Instructor certificates (CAA policies which apply to sec. 20.138).* (a) Prior to July 1, 1958, an applicant may exchange a flight instructor rating for a Flight Instructor certificate with aircraft category ratings appropriate to the aircraft in which he qualified for the flight instructor rating. Prior to July 1, 1958, an applicant who is the holder of a flight instructor rating and an instrument rating,

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[14] The dual minimum instruction required for various ratings is as follows:
Private pilot, airplane or rotorcraft—3 hours.
Private pilot, glider—1 hour.
Commercial pilot, airplane or rotorcraft—10 hours.
Commercial pilot, glider—2 hours.
Instrument rating—10 hours.

both issued prior to September 1, 1957, will be issued a Flight Instructor Certificate with an Instrument Instructor Rating.

(b) The holder of a flight instructor rating who fails to exchange his instructor rating for a Flight Instructor Certificate prior to July 1, 1958, may exchange it after that date by passing the appropriate practical test prescribed by section 20.130–1 (d).

(Published in 22 F. R. 5541, effective Aug. 1, 1957.)

NOTE: The record-keeping requirements contained herein have been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

Appendix A

Aircraft Type Ratings

This appendix contains the type ratings which the holder of a pilot certificate may be issued upon meeting the flight test standards applicable thereto.

Aircraft Type Ratings Issued

I. Civil Aircraft*

Manufacturer	Model Designations	Certificate Type Ratings
Boeing	247A, 247D, or C73	Boeing 247.
	314	Boeing 314.
	307 or SA307B1	Boeing 307.
	377 or C–97	Boeing 377.
	YC–97	Boeing YC–97.
Chase	YC–122	Chase YC–122.
Consolidated Vultee	28–4, 28–5, PBY2, PBY5, OA10	Consolidated Vultee PBY.
	Convair 240, 340, or 440, T–29, C–131, R4Y	Convair 240–340–440.
Curtiss-Wright	C46 or Commando	Curtiss-Wright C–46.
Douglas	DC3, C47, C48, C49, C50, C51, C52, C53, C68, R4D	Douglas DC3.
	Super DC3, DC3S	Douglas DC3S.
	DC4, C54, A, B, C, etc., R5D, 1, 2, 3, 4, etc.	Douglas DC4.
	DC6, DC6A, DC6B, DC7 or C118	Douglas DC6—DC7.
	DC2, C32, C33, C34, C39, C42, R2D	Douglas DC2.
	B18	Douglas B18.
	B23 or UC67	Douglas B23.
Ford	5ATB, 5ATC, or 5AT	Ford 5.
Grumman	G73 or Mallard	Grumman G–73.
Lockheed	18, C57, C59, C60, R50	Lockheed 18.
	Constellation, 049, 149, 649, 749, 1049, 1649, C–69, C121	Lockheed Constellation.
Martin	202 or 404	Martin 202–404.
Sikorsky	S43, S43B, or S43W	Sikorsky S43.
	S–58 (Helicopter)	Sikorsky S–58.
Vertol	Vertol 42 or 44	Vertol 44.
Vickers	744 or 745	Vickers Viscount.

*Including civil counterpart of military aircraft.

II. Military Aircraft

Military aircraft which have been certificated but which have no civilian counterpart will be shown on the certificate by manufacturer and by basic military identification; e. g., Boeing B–17.

III. Amphibious Aircraft

For Amphibian types, such as Consolidated PBY, the certificate will bear a restriction of "Land" or "Sea" unless proficiency has been demonstrated on both land and water, for example: CONSOLIDATED PBY LAND. If proficiency is demonstrated on both land and water the type rating will read "CONSOLIDATED PBY LAND AND SEA."

IV. Other Aircraft

Applicants for type ratings on aircraft not listed above, or for those aircraft listed in Safety Regulation Release 277 as certificated in the limited category, will be required to present evidence that at least one aircraft of the type concerned has been issued a certificate by the CAA for civilian use.

Appendix B

Pilot Tests Conducted by Foreign Governments Which Are Acceptable Toward the Issuance of U. S. Pilot Certificates Under CAR 20.112 (a.)

Country	Foreign Tests	Acceptable in Lieu of

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