U. S. DEPARTMENT OF COMMERCE

DANIEL C. ROPER, Secretary

BUREAU OF AIR COMMERCE

DENIS MULLIGAN, Director

CIVIL AIR REGULATIONS

21.—AIRLINE PILOT RATING

As Amended to May 31, 1938

UNITED STATES
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CIVIL AIR REGULATIONS

Pursuant to the authority contained in the Air Commerce Act of 1926 (44 Stat. 568) as amended by the Act of February 28, 1929 (45 Stat. 1404), the Act of June 19, 1934 (48 Stat. 1113), the Act of June 19, 1934 (48 Stat. 1116), and Sections 11 and 12 of the Act of June 12, 1934 (48 Stat. 933, 937), the following Civil Air Regulations are hereby made, prescribed, and issued to be known as—

Part 00. Aircraft Registration Certificate.
Part 01. Aircraft Certificates.
Part 02. Aircraft Identification Mark.
Part 03. Aircraft Title Transfer.
Part 04. Airplane Airworthiness.
Part 13. Aircraft Engine Airworthiness.
Part 14. Aircraft Propeller Airworthiness.
Part 15. Aircraft Equipment Airworthiness.
Part 18. Repair and Alteration of Aircraft.
Part 20. Pilot Rating.
Part 21. Airline Pilot Rating.
Part 23. Ground Instructor Rating.
Part 24. Mechanic Rating.
Part 25. Parachute Rigger Rating.
Part 26. Airport Control Tower Operator Rating.
Part 27. Airline Dispatcher Rating.
Part 40. Scheduled Airline Certification (Interstate and Intra-Territorial).
Part 50. Flying School Rating.
Part 52. Aircraft Repair Station Rating.
Part 60. Air Traffic Rules.
Part 61. Scheduled Airline Rules (Interstate).
Part 90. Air Mail.
Part 91. Aircraft Accident Investigations.
Part 92. Hearings Upon Certificates (Issued, Renewed, Denied, Suspended or Revoked).
Part 93. Evidence.
Part 94. Penalties.
Part 95. Imposition, Remission and Mitigation of Penalties.
Part 96. Authorization to Act for the Secretary.
Part 98. Definitions.
Part 99. Mode of Citation of Regulations.

Any and all rules and regulations heretofore made, prescribed, and issued by the Secretary of Commerce pursuant to the authority first above stated are hereby repealed.

Approved May 31, 1938.

[SEAL]

DANIEL C. ROPER,
Secretary of Commerce.

PART 21.—AIRLINE PILOT RATING

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21.0 Provision for rating. Pursuant to the provisions of the Air Commerce Act requiring the Secretary of Commerce to provide for the rating of airmen serving in connection with aircraft of the United States as to their qualifications for such service, airline pilots will be rated as to competence in accordance with the provisions of the following paragraphs.

21.1 Minimum requirements. To be eligible for an airline pilot competency rating, an applicant shall comply with the following minimum requirements:

21.10 Age. Applicant shall be at least 23 years of age.

21.11 Character. Applicant shall be of good moral character.

21.12 Citizenship. Applicant shall be—

21.120 (*a*) a citizen of the United States, or

21.121 (*b*) a citizen of a foreign country which grants reciprocal commercial pilot privileges to citizens of the United States on equal terms and conditions with citizens of such foreign country, or

21.122 (*c*) an alien who has filed his declaration of intention to become a citizen of the United States and notifies the Secretary of the serial number of such declaration and of the date thereof and of the court in which it is filed; *provided*, that the certificate of competency is, in such case, subject to revocation by the Secretary if the holder does not from time to time keep the Secretary advised of the status of the proceedings in court and does not diligently and successfully prosecute them and become admitted as a citizen.

21.13 Education.

21.130 (*a*) Applicant shall be able to read, write, and understand the English language, and shall be able to speak the English language

without accent or impediment of speech which would interfere with two-way radio conversation; and

21.131 (*b*) shall be a high school graduate or what is deemed by the Secretary to be its equivalent from the applicant's showing of general experience and aeronautical experience, knowledge, and skill.

21.14 **Physical condition.** Applicant shall comply with the following minimum requirements as to physical condition:

21.140 (*a*) **Eye.** Applicant shall have a visual acuity of at least 20/20 in each eye separately without correction; *provided*, that, if the vision in either or both eyes is not poorer than 20/50 and is brought up to 20/20 or better in each such eye by glasses, the applicant may be qualified on condition that correcting glasses be worn while piloting aircraft; an average depth perception of 30 millimeters or less with or without glasses is required; if the depth perception is greater than 30 millimeters without correction, and can be corrected to at least 30 millimeters by glasses, the restriction that correcting glasses be worn while piloting aircraft will apply; no diplopia; not more than 1 diopter of hyperphoria; properly balanced eye muscles with an abduction of 3 diopters or more; sufficient accommodation to pass a Bureau test based primarily upon ability to read official aeronautical maps; normal fields of vision; and no pathology of the eye.

21.141 (*b*) **Ear, nose, throat and equilibrium.** Applicant shall be able to hear the whispered voice at eight feet with each ear separately, shall have no acute or chronic disease of the middle or internal ear; no disease of the mastoid; no unhealed perforations of the ear drum; no disease or malformation of the nose or throat which may interfere with or be aggravated by flying, and no disturbance in equilibrium.

21.142 (*c*) **General physical condition.** Applicant shall have no organic or functional disease or structural defect or limitation which might interfere with the safe piloting of aircraft.

21.143 (*d*) **Nervous system.** Applicant shall have no disease of the mental or nervous system and no abnormality of the personality.

21.15 **Aeronautical knowledge.** Applicant shall be familiar with and shall accomplish a satisfactory written examination on:

21.1500 (*a*) The provisions of Parts 00, 02, 21, 27, 40, 60, 61, 91, 94 and 98, together with §§ 01.70 through 01.74, 04.52 and 04.53 insofar as the same deal with airline operations, and, if the pilot is to be rated for airline operation in whole or in part outside the United States, of Parts 41, 70, 71 and 77.

21.1501 (*b*) The fundamentals of air navigation and the use of formulae and of instruments and other navigational aids, both in aircraft and on the ground, which are deemed necessary for the navigation of aircraft by instruments.

21.1502 (*c*) The general system of weather collection and dissemination.

21.1503 (*d*) Weather map, weather forecast, and weather sequence abbreviations, symbols and nomenclature.

21.1504 (*e*) Elementary meteorology, including modern knowledge of the cyclone as associated with fronts.

21.1505 (*f*) Cloud forms.

21.1506 (*g*) Department of Agriculture Weather Bureau Circular "N", Instructions for Airway Meteorological Service, and all amendments thereto.

21.1507 (*h*) Weather conditions, including icing conditions and upper-air winds, affecting aeronautical activities.

21.1508 (*i*) Air navigation facilities in use on the civil airways, including rotating beacons, course lights, radio ranges, and radio marker beacons.

21.1509 (*j*) Data obtained from airplane weather observations and meteorological data reported from observations made by pilots engaged in airline flights.

21.1510 (*k*) The influence of terrain upon meteorological conditions and developments, and the relation thereof to airline flight operations.

21.16 Aeronautical experience. Applicant shall comply with the following requirements:

21.160 (*a*) Applicant shall be possessed of a valid commercial pilot rating, or equivalent as determined by the Secretary.

21.161 (*b*) Applicant shall have logged at least 1,200 hours of certified solo flying time within the last 8 years, of which at least 500 hours shall have been in cross-country flight, and of which at least 5 hours of solo flying time shall have been logged within the 60 days last preceding the date of filing the application.

21.162 (*c*) Applicant shall have logged at least 100 hours of solo night flying, of which at least 50 hours shall have been cross-country over lighted airways.

21.163 (*d*) Applicant shall have had at least 20 hours of instrument flying instruction and practice. In lieu of not to exceed 10 hours of the foregoing 20-hour requirement applicant may show an equal or greater amount of instruction and practice under simulated conditions approved by the Secretary.

21.17 Aeronautical skill. Applicant shall demonstrate satisfactorily his ability to pilot an aircraft of each type, weight and engine classification, as provided in §§ 21.34 and 21.35, on which he seeks rating, in normal take-offs, turns, landings, and the following maneuvers (the maneuvers in §§ 21.175 and 21.176 may be performed in a type of aircraft satisfactory to the examining Bureau inspector):

21.170 (*a*) From 3,500 feet, with engine throttled, a 360° turn and a landing in normal landing attitude.

21.171 (*b*) From 2,500 feet, with engine throttled, a 180° turn and a landing in normal landing attitude.

21.172 (*c*) A series of 3 shallow and 3 steep figure 8 turns, and one 720° steep power turn in each direction. During these maneuvers, the pilot shall not gain or lose more than 200 feet of altitude.

21.173 (*d*) A spiral in one direction from 3,500 feet, or higher, with engine throttled, and a landing in normal landing attitude.

21.174 (*e*) Altitudes and permissible errors in §§ 21.170 through 21.173 are applicable when flight tests are conducted in aircraft of a gross weight in excess if 10,000 pounds, otherwise those in §§ 20.1470 through 20.1472 apply.

21.175 (*f*) Emergency maneuvers such as simulated forced landings, spirals, side slips and climbing turns, and recovery from stalls,

maneuvers in multi-engine equipment with authorized load with one engine inoperative, if rating is sought on such equipment, and such other maneuvers as the examining Bureau inspector may deem necessary to demonstrate the competence of the applicant.

21.176 (*g*) A right hand and a left hand spin, each of at least two full turns, with not to exceed 10 degrees error.

NOTE.—The requirements of § 21.170 through § 21.176 and of § 21.179 may be met by the holding of a valid commercial rating.

21.177 Applicant shall accomplish satisfactorily a flight test, solely by instruments, with respect to the following:

21.1770 (*a*) Straight level flight for a given period of time.

21.1771 (*b*) Moderate banks during 180° and 360° turns in both directions.

21.1772 (*c*) Minimum glides and maximum climbs, and approaches to stalled attitudes of flight.

21.1773 (*d*) Climbing turns.

21.1774 (*e*) Stalls, skids, slips and spirals, and banks in excess of 45°, and recovery from the same.

21.1775 (*f*) Such other maneuvers as the examining inspector deems necessary.

21.1776 (*g*) A practical demonstration, while in flight or under simulated conditions, of estimating arrival time, taking into account speed, wind and drift.

NOTE.—The requirements of §§ 21.1770 through 21.1774 may be met by the holding of a valid instrument rating.

21.178 Radio skill. Applicant shall accomplish a satisfactory flight test, in a hooded cockpit, with respect to the following:

21.1780 (*a*) Tuning radio.

21.1781 (*b*) Orientation. Effective January 1, 1939, such orientation shall include the use of the radio direction finder with sufficient tests to determine the ability of the pilot to:

(1) home on a radio station

(2) determine whether the aircraft is heading toward or away from the station

(3) obtain accurate fixes by the use of radio compass.

21.1782 (*c*) Following radio range.

21.1783 (*d*) Locating cone of silence.

21.1784 (*e*) Letting-down-through on the range by the approved instrument approach procedure for the particular airport used in connection with the test.

21.1785 (*f*) Such other maneuvers as the examining inspector deems necessary.

21.179. Such maneuvers as are necessary to demonstrate competence to satisfactorily pilot an aircraft from either control seat. None of the maneuvers provided for in § 21.17 shall be disregarded, but any such maneuver may be modified by the examining Bureau inspector to such extent as may be necessary for reasonable and safe operation of the aircraft used in the particular maneuver. Such inspector will report any such modification to the Secretary in writing.

21.2 Airline pilot competency certificate.

21.20 General. An airline pilot competency certificate will be issued by the Secretary to a natural person, who is an applicant therefor, after approval of an application made and proofs submitted in connection therewith and if, upon inspection and examination, said applicant is found by the Secretary to meet the minimum requirements prescribed therefor in § 21.1. Until October 1, 1938, the holder of both a valid transport pilot license and a scheduled air transport rating, upon a showing of the same and upon application made as provided in § 21.21, will be issued an airline pilot certificate with ratings specifying aircraft of the type, weight and engine classification as specified on his transport pilot license. In the interim, piloting shall be under authority heretofore granted.

21.21 Application. Application for an airline pilot certificate, subscribed under oath, shall be made to the Secretary upon a form supplied for the purpose.

21.210 Application to amend. When any change in an airline pilot competency rating is desired, the applicant shall file a written request therefor with the Secretary upon a form supplied for the purpose.

21.211 Proceeding to amend. A proceeding to amend an airline pilot competency rating may be instituted by the Secretary when, in his opinion, the pilot is no longer competent in respect of some matter specified in the certificate. Notice of such proceeding shall be addressed to the pilot with opportunity for a hearing. In the interim, the certificate may be suspended in whole or in part by a duly authorized Bureau inspector or by the Secretary. Following the hearing, the Secretary may issue a re-rating as to competency.

21.22 Issuance. Upon approval of an application duly made, proofs submitted and examinations and tests satisfactorily completed, an airline pilot certificate will be issued in an appropriate form.

21.220 Temporary certificate. Following application made for an airline pilot certificate, but prior to approval thereof and issuance of the certificate, a temporary airline pilot certificate may be issued by the examining Bureau inspector.

21.221 Special ratings. A special rating, except an instrument rating (§ 21.223), will be issued to and renewed for the holder of a valid airline pilot certificate pursuant to the provisions of §§ 20.2 and 20.4 and upon the same terms as such rating is issued to and renewed for the holder of a valid commercial pilot certificate.

21.222 Instruction in airline service. Any person holding a valid airline pilot certificate shall be considered competent to instruct other pilots in airline service in aircraft of a type, weight and engine classification specified in the airline pilot certificate of the instructing pilot, *provided, however*, such instruction shall be subject to the prohibitions provided for in § 20.65.

21.223 Instrument rating. Any person holding a valid airline pilot certificate shall be considered competent to pilot, solely by instruments, aircraft of a type, weight and engine classification specified in his airline pilot certificate, and, in addition thereto, to pilot, solely by instruments, aircraft of other type, weight and engine classifications as specified in §§ 21.350 and 21.351.

21.23 Display. An airline pilot certificate shall be kept in the personal possession of the pilot at all times when piloting aircraft, and shall be presented for inspection upon the demand of any passenger, or of any authorized official or employee of the Department of Commerce or any State or municipal official charged with the duty of enforcing local laws or regulations involving Federal compliance, or upon the reasonable request of any other person.

21.24 Duration. An airline pilot certificate, unless sooner suspended or revoked, as provided in § 21.27, will remain in force for 6 months.

21.25 Renewal. The term of an airline pilot certificate may be renewed, for a like period as the original certificate, upon application within 45 days prior to expiration and upon satisfactory showing of the following facts:

21.250 (*a*) 10 hours of solo flight, in aircraft of each type, weight and engine classification for which renewal is sought, within the 6 months preceding expiration.

21.251 (*b*) 5 hours of flying solely by instruments within the 6 months preceding the expiration date of the certificate. In lieu of 50% of the above requirement, applicant may show an equal or greater amount of practice under simulated conditions approved by the Secretary.

21.252 (*c*) A satisfactory physical examination by a medical examiner of the Department of Commerce, duly authorized to so examine such pilots, completed within the 45 days preceding expiration, in accordance with the provisions of § 21.14; *provided, however*, that the existence of a lesser grade or condition in one or more of the particulars mentioned in § 21.14 may not disqualify the applicant if excellence in other particulars or excellence in aeronautical experience or in aeronautical skill offsets the deficiency, in the opinion of the Secretary; and *provided, further*, that an increase in such deficiency, which occurs at any time within the effective period of the certificate and cannot be compensated for by some other excellence (as in aeronautical experience or practical skill) will automatically invalidate such certificate.

21.253 Reinstatement. In the event of an emergency which prevents renewal prior to expiration, and upon a showing thereof satisfactory to the Secretary, the applicant may have his airline pilot certificate validated in accordance with the provisions for renewal in § 21.25, provided the flight tests appropriate to the rating are again satisfactorily accomplished. The date of application for reinstatement rather than the expiration date of the certificate shall be controlling in applying § 21.25. There shall be but one application for reinstatement following a given lapse.

21.254 Re-rating after lapse. Within 6 months after the expiration date of an airline pilot certificate the holder thereof may have issued to him a solo pilot certificate upon application therefor and a satisfactory showing to the Secretary of physical competency as provided in § 21.252, and of 5 hours of certified solo flying time logged by the applicant within the year preceding application in aircraft of each type, weight and engine classification for which the solo pilot certificate is sought.

21.26 Non-transferability. An airline pilot certificate is not transferable.

21.27 Suspension or revocation. The following rules will govern the suspension or revocation of an airline pilot certificate.

21.270 Automatic invalidation. Any physical deficiency, or any increase in physical deficiency, which occurs at any time within the effective period of an airline pilot certificate and which is not compensated for by some additional excellence as provided for in § 21.252, will automatically cause such pilot certificate to become invalid for the period of such physical deficiency.

21.271 General grounds. An airline pilot certificate may be suspended by a duly authorized Bureau inspector or by the Secretary or revoked by the Secretary by reason of any of the following on the part of the holder thereof:

21.27100 (*a*) Any false statement in an application for a certificate or in any report required to be submitted by these regulations.

21.27101 (*b*) Use or display of the certificate for any fraudulent purpose.

21.27102 (*c*) Refusal to exhibit the certificate upon proper demand.

21.27103 (*d*) Unsound physical or mental condition.

21.27104 (*e*) Any demonstration of incompetency in the piloting of aircraft.

21.27105 (*f*) Failure to wear correcting lenses when required.

21.27106 (*g*) Being under the influence of, or using or having personal possession of, intoxicating liquor, cocaine or other habit-forming drugs while on duty.

21.27107 (*h*) Knowingly taking off and carrying any passenger who is obviously under the influence of intoxicating liquor, cocaine or other habit-forming drugs.

21.27108 (*i*) Carelessness or inattention to duty affecting safety.

21.27109 (*j*) Performance of any act in connection with aircraft which is contrary to the public safety or interest.

21.27110 (*k*) Violation of any provision of the Air Commerce Act or any rule or regulations duly issued thereunder.

21.28 Surrender. Upon notice from a duly authorized Bureau inspector of the suspension of an airline pilot certificate by such inspector or by the Secretary, and upon demand of either of the same for the surrender of such certificate, or upon notice from the Secretary of the revocation of such certificate, the holder thereof shall immediately surrender such certificate to such inspector or immediately return such certificate to the Secretary, as the case may be. In case of revocation, notwithstanding any failure or refusal to surrender an airline pilot certificate, it shall be deemed canceled and of no further force or effect.

21.29 Re-application. An applicant for an airline pilot certificate who has failed to successfully accomplish any prescribed test for such rating may apply for re-examination thereon after the expiration of 30 days from the date of such failure, provided he shows at least 10 additional hours of certified solo flying time logged by him, which shall include at least 5 hours of flying solely by instruments.

21.3 Examinations and tests.

21.30 General. The examinations and tests prescribed in these regulations (both for an airline pilot certificate and for the ratings issued with respect thereto) will be conducted by an authorized officer or employee of the Bureau or by a properly qualified person designated for the purpose by the Secretary. During the flight tests the airline may have a check pilot on board.

21.31. Physical examination. In connection with the original issuance of any airline pilot certificate the physical examination prescribed shall be accomplished by a medical examiner of the Department of Commerce, duly authorized to so examine such pilots, before any practical or theoretical test or other examination will be given, and shall be completed within the 60 days preceding the date of filing application for such pilot certificate.

21.32. Time and place. All examinations and tests will be held at such times and places as the Secretary may designate.

21.33. Aircraft used in tests. The applicant shall furnish a certificated aircraft for any flight test involved. Each such aircraft, used in any test for an airline pilot certificate shall be equipped with dual controls and shall accommodate the applicant and the inspector. Aircraft having only one elevator and aileron control for two seats, or any arrangement whereby all flight and engine controls cannot be handled in a normal or conventional manner from either seat, are not considered as having dual controls for the purpose of flight tests for pilot ratings. Each such aircraft shall have adequate vision for the pilot and check pilot.

21.34. Aircraft type classification. For purposes of specifying the types of aircraft which the applicant is deemed competent to pilot and for convenience of examining the applicant with respect thereof, the following aircraft type classification is prescribed:

(*a*) Conventional airplane (land or water).
(*b*) Unconventional airplane (land or water).
(*c*) Rotorplane (land or water).
(*d*) Glider.
(*e*) Aerostat.

21.35. Aircraft weight and engine classification. For purposes of specifying the weight and powerplant equipment of aircraft which the applicant is deemed competent to pilot, and for convenience of examining the applicant with respect thereto, the following aircraft weight and engine classification is prescribed:

(*a*) Class 1.—Gross weight not more than 1,500 pounds.
(*b*) Class 2S.—Gross weight between 1,500 and 4,000 pounds, single-engine.
(*c*) Class 2M.—Gross weight between 1,500 and 4,000 pounds, multi-engine.
(*d*) Class 3S.—Gross weight between 4,000 and 10,000 pounds, single-engine.
(*e*) Class 3M.—Gross weight between 4,000 and 10,000 pounds, multi-engine.
(*f*) Class 4S.—Gross weight between 10,000 and 25,000 pounds, single-engine.

(*g*) Class 4M.—Gross weight between 10,000 and 25,000 pounds, multi-engine.

(*h*) Class 5.—Gross weight in excess of 25,000 pounds.

21.350 The holder of a valid airline pilot certificate may pilot aircraft of a weight or engine classification other than as specified in such pilot certificate, except for the carriage of any person other than a second pilot with at least a valid private pilot certificate, or any other bona fide crew member in aircraft of Class 5, or any property other than necessary flight equipment. (See also § 21.41.)

21.351 The holder of a valid airline pilot certificate may pilot conventional aircraft of a similar airplane classification (§ 04.010) and of an equal or lower weight or engine classification than as specified in such pilot certificate, except for the carriage of any person other than a certificated instructor actually giving instruction to such pilot or any property other than necessary flight equipment and personal baggage. (See also § 21.41.)

21.36 Inspection. The applicant for an airline pilot certificate shall offer full cooperation in respect of any inspection or examination which may be made of said applicant upon proper demand by any authorized representative of the Secretary prior or subsequent to the issuance of such certificate.

21.37 Standard of performance. Every practical and theoretical examination and test shall be accomplished to the satisfaction of the Secretary and the minimum passing grade in the subject of examination or test shall be 70 per cent. Each flight maneuver will be graded separately. Other examinations will be graded as a whole.

21.38 Reports. The person giving any examination or test in behalf of the Secretary will report the result thereof upon an appropriate form to the Secretary and all data collected incident to such examination or test will be considered as of a confidential nature by such person and by all employees of the Department of Commerce.

21.4 Pilot regulations.

21.40 Certificate required. No person shall be in command of an aircraft in certificated scheduled air carrier service for the carriage of passengers on a civil airway, or in interstate or foreign air commerce or elsewhere, unless possessed of a valid airline pilot certificate.

21.41 Aircraft type and weight. No person holding a valid airline pilot certificate shall pilot for hire, or carry any person for or without hire other than a properly certificated instructor in, an aircraft of a type, weight or engine classification other than as specified in his airline pilot certificate, except in accordance with § 21.350 or § 21.351.

21.42 Night flying. No certificated airline pilot shall take off or land an aircraft carrying passengers, between sunset and sunrise, unless he has made at least 5 take-offs and landings between sunset and sunrise within the last preceding 90 days.

21.43 Instruction. No person holding a valid airline pilot certificate shall give flying instruction, except as provided for in § 21.222, unless possessed of a valid instructor rating or unless such instruction is given subject to the prohibitions of § 20.65.

21.44 Log-books. The following rules will govern pilot log-books:

21.440 General. Every certificated airline pilot shall keep an

accurate record of his flying time in a log-book in which the entries as to solo flying have been certified to by him before a notary public or by an official of the airline of which he is an employee during such time, and in which the entries as to instruction have been certified to by his instructor. Log-books shall be bound records and the entries shall be accurate, legible, in ink or indelible pencil, and so arranged as to facilitate easy reference thereto.

21.441 Contents. The log-book shall contain the date of flight, the make and model of aircraft flown, its type, weight and engine classification, the aircraft certificate number, a statement of solo, dual instruction, instrument and night flying time, the duration of the flight, and the points between which such flight was made, and, in addition, when any flight results in serious damage to the aircraft, a notation to this effect. Flying instruction time shall be logged in the same manner and, in addition, the instructor shall make complete entries in the log-book of his student showing the nature of each maneuver in which instruction was given and the time spent thereon. The instructor shall attest each such entry with his initials, pilot certificate number and pertinent rating. This log-book shall be presented for inspection, upon demand and reasonable notice, to any authorized representative of the Department of Commerce or State or municipal officer enforcing local regulations or laws involving Federal compliance.

21.442 Logging instrument flight time. Instrument flight time may be logged as such only when the aircraft is flown solely by reference to instruments either under actual or properly simulated flight conditions. (Over-the-top flying shall not be logged as instrument flight time.)

21.45 Foreign Flights. No person shall be in command of any aircraft of the United States flying in any foreign country unless possessed of an airline pilot certificate with a rating for the type, weight and engine classification of aircraft so flown.

NOTE.—For permission of U. S. aircraft to be flown out of the United States with intent to enter a foreign country, see Part 70.

U. S. DEPARTMENT OF COMMERCE
DANIEL C. ROPER, Secretary
BUREAU OF AIR COMMERCE
FRED D. FAGG, Jr., Director

CIVIL AIR REGULATIONS

21.—AIRLINE PILOT RATING

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CIVIL AIR REGULATIONS

21.—AIRLINE PILOT RATING

21.0—PROVISION FOR RATING.—Pursuant to the provisions of the Air Commerce Act requiring the Secretary of Commerce to provide for the rating of airmen serving in connection with aircraft of the United States as to their qualifications for such service, airline pilots will be rated as to competence in accordance with the provisions of the following paragraphs.

21.1—MINIMUM REQUIREMENTS.—To be eligible for an airline pilot competency rating, an applicant shall comply with the following minimum requirements:

21.10—Age.—Applicant shall be at least 23 years of age.

21.11—Character.—Applicant shall be of good moral character.

21.12—Citizenship.—Applicant shall be—

21.120—(*a*) a citizen of the United States, or

21.121—(*b*) a citizen of a foreign country which grants reciprocal commercial pilot privileges to citizens of the United States on equal terms and conditions with citizens of such foreign country, or

21.122—(*c*) an alien who has filed his declaration of intention to become a citizen of the United States and notifies the Secretary of the serial number of such declaration and of the date thereof and of the court in which it is filed; *provided*, that the certificate of competency is, in such case, subject to revocation if the holder does not from time to time keep the Secretary advised of the status of the proceedings in court and does not diligently and successfully prosecute them and become admitted as a citizen.

21.13—Education.

21.130—(*a*) Applicant shall be able to read, write, and understand the English language, and shall be able to speak the English language without accent or impediment of speech which would interfere with two-way radio conversation; and

21.131—(*b*) shall be a high school graduate or what is deemed by the Secretary to be its equivalent from the applicant's showing of general experience and aeronautical experience, knowledge, and skill.

21.14—Physical Condition.—Applicant shall comply with the following minimum requirements as to physical condition:

21.140—(*a*) EYE.—Applicant shall have a visual acuity of at least 20/20 in each eye separately without correction; an average depth perception of 30 millimeters or less without correction; no diplopia; not more than 1 diopter of hyperphoria; properly balanced eye muscles with an abduction of 3 diopters or more; sufficient accommodation to pass a Bureau test based primarily upon ability to read official aeronautical maps; normal fields of vision; and no pathology of the eye.

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21.141—(*b*) EAR, NOSE, THROAT AND EQUILIBRIUM.—Applicant shall be able to hear the whispered voice at eight feet with each ear separately; shall have no acute or chronic disease of the middle or internal ear; no disease of the mastoid; no unhealed perforations of the ear drum; no disease or malformation of the nose or throat which may interfere with or be aggravated by flying, and no disturbance in equilibrium.

21.142—(*c*) GENERAL PHYSICAL CONDITION.—Applicant shall have no organic or functional disease or structural defect or limitation which might interfere with the safe piloting of aircraft.

21.143—(*d*) NERVOUS SYSTEM.—Applicant shall have no disease of the mental or nervous system and no abnormality of the personality.

21.15—Aeronautical Knowledge.—Applicant shall be familiar with and shall accomplish a satisfactory written examination on:

21.1500—(*a*) The provisions of CAR 00, 02, 40, 60, 61 and 98, with CAR 01.70 through 01.74, 04.52 and 04.53, and with 27, 30, 31, 91 and 94 insofar as the same deal with airline operations, and with CAR 41, 70, 71 and 77 if the pilot is to be rated for airline operation in whole or in part without the United States.

21.1501—(*b*) The fundamentals of air navigation and the use of formulae and of instruments and other navigational aids, both in aircraft and on the ground, which are deemed necessary for the navigation of aircraft by instruments.

21.1502—(*c*) The general system of weather collection and dissemination.

21.1503—(*d*) Weather map, weather forecast, and weather sequence abbreviations, symbols and nomenclature.

21.1504—(*e*) Elementary meteorology, including modern knowledge of the cyclone as associated with fronts.

21.1505—(*f*) Cloud forms.

21.1506—(*g*) Department of Agriculture Weather Bureau Circular "N", Instructions for Airway Meteorological Service, and all amendments thereto.

21.1507—(*h*) Weather conditions, including icing conditions and upper-air winds, affecting aeronautical activities.

21.1508—(*i*) Air navigation facilities in use on the civil airways, including rotating beacons, course lights, radio ranges, and radio marker beacons.

21.1509—(*j*) Data obtained from airplane weather observations and meteorological data reported from observations made by pilots engaged in airline flights.

21.1510—(*k*) The influence of terrain upon meteorological conditions and developments, and the relation thereof to airline flight operations.

21.16—Aeronautical Experience.—Applicant shall comply with the following requirements:

21.160—(*a*) Applicant shall be possessed of a valid commercial pilot rating, or equivalent as determined by the Secretary.

21.161—(*b*) Applicant shall have logged at least 1,200 hours of certified solo flying time within the last 8 years, of which at least 500 hours shall have been in cross-country flight, and of which at least 5 hours of solo flying time shall have been logged within the 60 days last preceding the date of filing the application.

21.162—(*c*) Applicant shall have logged at least 100 hours of solo night flying, of which at least 50 hours shall have been cross-country over lighted airways.

21.163—(*d*) Applicant shall have had at least 20 hours of instrument flying instruction and practice. In lieu of not to exceed 10 hours of the foregoing 20-hour requirement applicant may show an equal or greater amount of instruction and practice under simulated conditions approved by the Secretary.

21.17—Aeronautical Skill.—Applicant shall demonstrate satisfactorily his ability to pilot an aircraft of each type, weight and engine classification, as provided in CAR 21.34 and 21.35, on which he seeks rating, in normal take-offs, turns, landings, and the following maneuvers (the maneuvers in CAR 21.175 and 21.176 may be performed in a type of aircraft satisfactory to the examining Bureau inspector):

21.170—(*a*) From 2,000 feet, with engine throttled, a 360° turn and a landing in normal landing attitude, the wheels touching the ground beyond and within 200 feet of a line or point designated by the examining Bureau inspector.

21.171—(*b*) From 1,500 feet, with engine throttled, a 180° turn and a landing in normal landing attitude, the wheels touching the ground beyond and within 200 feet of a line or point designated by the examining Bureau inspector.

21.172—(*c*) A series of 3 shallow and 3 steep figure 8 turns, and one 720° steep power turn in each direction. During these maneuvers, the pilot shall not gain or lose more than 200 feet of altitude.

21.173—(*d*) A spiral in one direction from 2,000 feet, or higher, with engine throttled, and a landing in normal landing attitude, the wheels touching the ground beyond and within 200 feet of a line or point designated by the examining Bureau inspector.

21.174—(*e*) Altitudes and permissible errors in CAR 21.170 through 21.173 are applicable when flight tests are conducted in aircraft of a gross weight in excess of 10,000 pounds, otherwise those in CAR 20.1470 through 20.1472 apply.

21.175—(*f*) Emergency maneuvers such as spirals, side slips and climbing turns, and recovery from stalls, maneuvers in multi-engine equipment with authorized load with one engine inoperative, and such other maneuvers as the examining Bureau inspector may deem necessary to demonstrate the competence of the applicant.

21.176—(*g*) A right hand and a left hand spin, each of at least two full turns, with not to exceed 10 degrees error.

NOTE.—The requirements of CAR 21.170 through 21.176 may be met by the holding of a valid commercial rating.

21.177—Applicant shall accomplish satisfactorily a flight test, solely by instruments, with respect to the following:

21.1770—(*a*) Straight level flight for a given period of time.

21.1771—(*b*) Moderate banks during 180° and 360° turns in both directions.

21.1772—(*c*) Minimum glides and maximum climbs, and approaches to stalled attitudes of flight.

21.1773—(*d*) Climbing turns.

21.1774—(*e*) Recovery from stalls, skids, slips and spirals, and from banks in excess of 45°.

21.1775—(*f*) Such other maneuvers as the examining inspector deems necessary.

21.1776—(*g*) A practical demonstration, while in flight or under simulated conditions, of estimating arrival time, taking into account speed, wind and drift.

NOTE.—The requirements of CAR 21.1770 through 21.1774 may be met by the holding of a valid instrument rating.

21.178—RADIO SKILL.—Applicant shall accomplish a satisfactory flight test, in a hooded cockpit, with respect to the following:

21.1780—(*a*) Tuning radio.

21.1781—(*b*) Orientation.

21.1782—(*c*) Following radio range.

21.1783—(*d*) Locating cone of silence.

21.1784—(*e*) Letting-down-through on the range by the approved instrument approach procedure for the particular airport used in connection with the test.

21.1785—(*f*) Such other maneuvers as the examining inspector deems necessary.

21.2—AIRLINE PILOT COMPETENCY CERTIFICATE.

21.20—General.—An airline pilot competency certificate will be issued by the Secretary to a natural person, who is an applicant therefor, after approval of an application made and proofs submitted in connection therewith and if, upon inspection and examination, said applicant is found by the Secretary to meet the minimum requirements prescribed therefor in CAR 21.1. For 6 months after the effective date of these regulations the holder of both a valid transport pilot license and a scheduled air transport rating, upon a showing of the same and upon application made as provided in CAR 21.21, will be issued an airline pilot certificate with ratings specifying aircraft of the type, weight and engine classification as specified on his transport pilot license. In the interim, piloting shall be under authority heretofore granted.

21.21—Application.—Application for an airline pilot certificate, subscribed under oath, shall be made to the Secretary upon a form supplied for the purpose.

21.210—APPLICATION TO AMEND.—When any change in an airline pilot competency rating is desired, the applicant shall file a written request therefor with the Secretary upon a form supplied for the purpose.

21.211—PROCEEDING TO AMEND.—A proceeding to amend an airline pilot competency rating may be instituted by the Secretary when, in his opinion, the pilot is no longer competent in respect of some matter specified in the certificate. Notice of such proceeding shall be addressed to the pilot with opportunity for a hearing. In the interim, the certificate may be suspended in whole or in part. Following the hearing, the Secretary may issue a re-rating as to competency.

21.22—Issuance.—Upon approval of an application duly made, proofs submitted and examinations and tests satisfactorily completed, an airline pilot certificate will be issued in an appropriate form.

21.220—Temporary Certificate.—Following application made for an airline pilot certificate, but prior to approval thereof and issuance of the certificate, a temporary airline pilot certificate may be issued by the examining Bureau inspector.

21.221—Special Ratings.—Any special rating, except an instrument rating, issued as provided in CAR 20.2 and 20.4 will be entered or indicated at the proper place therefore on the airline pilot certificate.

21.222—Any airline pilot, possessed of a valid certificate as such, shall be considered competent to instruct, as outlined in CAR 20.20, other pilots in airline service on the type of equipment in which the instructing pilot is rated.

21.23—Display.—An airline pilot certificate shall be kept in the personal possession of the pilot at all times when piloting aircraft, and shall be presented for inspection upon the demand of any passenger, or of any authorized official or employee of the Department of Commerce or any State or municipal official charged with the duty of enforcing local laws or regulations involving Federal compliance, or upon the reasonable request of any other person.

21.24—Duration.—An airline pilot certificate, unless sooner suspended or revoked, as provided in CAR 21.27, will remain in force for 6 months.

21.25—Renewal.—The term of an airline pilot certificate may be renewed, for a like period as the original certificate, upon application within 45 days prior to expiration and upon satisfactory showing of the following facts:

21.250—(*a*) 10 hours of solo flight, in aircraft of each type, weight and engine classification for which renewal is sought, within the 6 months preceding expiration.

21.251—(*b*) 5 hours of flying solely by instruments within the 6 months preceding the expiration date of the certificate. In lieu of 50% of the above requirement, applicant may show an equal or greater amount of practice under simulated conditions approved by the Secretary.

21.252—(*c*) A satisfactory physical examination by a medical examiner of the Department of Commerce, duly authorized to so examine such pilots, completed within the 45 days preceding expiration, in accordance with the provisions of CAR 21.14. Provided, however, that the existence of a lesser grade or condition in one or more of the particulars mentioned in CAR 21.14 may not disqualify the applicant if excellence in other particulars or excellence in aeronautical experience or in aeronautical skill offsets the deficiency, in the opinion of the Secretary; and *provided*, further, that an increase in such deficiency, which occurs at any time within the effective period of the certificate and cannot be compensated for by some other excellence (as in aeronautical experience or practical skill) will be ground for the revocation of such certificate.

21.253—Reinstatement.—In the event of an emergency which prevents renewal prior to expiration, and upon a showing thereof satisfactory to the Secretary, the applicant may have his airline pilot certificate validated in accordance with the provisions for renewal in CAR 21.25, provided the flight tests appropriate to the rating are again satisfactorily accomplished. The date of application for reinstatement rather than the expiration date of the certificate shall be controlling in applying CAR 21.25. There shall be but one application for reinstatement following a given lapse.

21.254—Re-Rating After Lapse.—Within 6 months after the expiration date of an airline pilot certificate the holder thereof may have issued to him a solo pilot certificate upon application therefor and a satisfactory showing to the Secretary of physical competency as provided in CAR 21.252, and of 5 hours of certified solo flying time logged by the applicant within the year preceding application in aircraft of each type, weight and engine classification for which the solo pilot certificate is sought.

21.26—Non-Transferability.—An airline pilot certificate is not transferable.

21.27—Suspension or Revocation.—The following rules will govern the suspension or revocation of an airline pilot certificate.

21.270—AUTOMATIC INVALIDATION.—Any physical deficiency, or any increase in physical deficiency, which occurs at any time within the effective period of an airline pilot certificate and which is not compensated for by some additional excellence as provided for in CAR 21.252, will automatically cause such pilot certificate to become invalid for the period of such physical deficiency.

21.271—GENERAL GROUNDS.—An airline pilot certificate may be suspended or revoked by reason of any of the following on the part of the holder thereof:

21.27100—(*a*) Any false statement in an application for a certificate or in any report required to be submitted by these regulations.

21.27101—(*b*) Use or display of the certificate for any fraudulent purpose.

21.27102—(*c*) Refusal to exhibit the certificate upon proper demand.

21.27103—(*d*) Unsound physical or mental condition.

21.27104—(*e*) Any demonstration of incompetency in the piloting of aircraft.

21.27105—(*f*) Failure to wear correcting lenses when required.

21.27106—(*g*) Being under the influence of, or using or having personal possession of, intoxicating liquor, cocaine or other habit-forming drugs while on duty.

21.27107—(*h*) Knowingly taking off and carrying any passenger who is obviously under the influence of intoxicating liquor, cocaine or other habit-forming drugs.

21.27108—(*i*) Carelessness or inattention to duty affecting safety.

21.27109—(*j*) Performance of any act in connection with aircraft which is contrary to the public safety or interest.

21.27110—(*k*) Violation of any provision of the Air Commerce Act or any rule or regulations duly issued thereunder.

21.28—Surrender.—Upon notice from the Secretary of the suspension or revocation of an airline pilot certificate, the holder thereof shall immediately return such certificate to the Secretary.

21.29—Re-Application.—An applicant for an airline pilot certificate who has failed to successfully accomplish any prescribed test for such rating may apply for re-examination thereon after the expiration of 30 days from the date of such failure, provided he shows at least 10 additional hours of certified solo flying time logged by him, which shall include at least 5 hours of flying solely by instruments.

21.3—EXAMINATIONS AND TESTS.

21.30—General.—The examinations and tests prescribed in these regulations (both for an airline pilot certificate and for the ratings issued with respect thereto) will be conducted by an authorized officer or employee of the Bureau or by a properly qualified person designated for the purpose by the Secretary. During the flight tests the airline may have a check pilot on board.

21.31—Physical Examination.—In connection with the original issuance of any airline pilot certificate the physical examination prescribed shall be accomplished by a medical examiner of the Department of Commerce, duly authorized to so examine such pilots, before any practical or theoretical test or other examination will be given, and shall be completed within the 60 days preceding the date of filing application for such pilot certificate.

21.32—Time and Place.—All examinations and tests will be held at such times and places as the Secretary may designate.

21.33—Aircraft Used in Tests.—The applicant shall furnish a certificated aircraft for any flight test involved. Each such aircraft, used in any test for an airline pilot certificate shall be equipped with dual controls and shall accomodate the applicant and the inspector. Aircraft having only one elevator and aileron control for two seats, or any arrangement whereby all flight and engine controls cannot be handled in a normal or conventional manner from either seat, are not considered as having dual controls for the purpose of flight tests for pilot ratings. Each such aircraft shall have full normal visibility for the check pilot.

21.34—Aircraft Type Classification.—For purposes of specifying the types of aircraft which the applicant is deemed competent to pilot and for convenience of examining the applicant with respect thereof, the following aircraft type classification is prescribed:

(*a*) Conventional airplane (land or water).
(*b*) Unconventional airplane (land or water).
(*c*) Rotorplane (land or water).
(*d*) Glider.
(*e*) Aerostat.

21.35—Aircraft Weight and Engine Classification.—For purposes of specifying the weight and powerplant equipment of aircraft which the applicant is deemed competent to pilot, and for convenience of examining the applicant with respect thereto, the following aircraft weight and engine classification is prescribed:

(*a*) Class 1.—Gross weight not more than 1,500 pounds.
(*b*) Class 2S.—Gross weight between 1,500 and 4,000 pounds, single-engine.
(*c*) Class 2M.—Gross weight between 1,500 and 4,000 pounds, multi-engine.
(*d*) Class 3S.—Gross weight between 4,000 and 10,000 pounds, single-engine.
(*e*) Class 3M.—Gross weight between 4,000 and 10,000 pounds, multi-engine.
(*f*) Class 4S.—Gross weight between 10,000 and 25,000 pounds, single-engine.
(*g*) Class 4M.—Gross weight between 10,000 and 25,000 pounds, multi-engine.
(*h*) Class 5.—Gross weight in excess of 25,000 pounds.

21.36—Inspection.—The applicant for an airline pilot certificate shall offer full cooperation in respect of any inspection or examination which may be made of said applicant upon proper demand by any authorized repersentative of the Secretary prior or subsequent to the issuance of such certificate.

21.37—Standard of Performance.—Every practical and theoretical examination and test shall be accomplished to the satisfaction of the Secretary and the minimum passing grade in the subject of examination or test shall be 70 per cent. Each flight maneuver will be graded separately. Other examinations will be graded as a whole.

21.38—Reports.—The person giving any examination or test in behalf of the Secretary will report the result thereof upon an appropriate form to the Secretary and all data collected incident to such examination or test will be considered as of a confidential nature by such person and by all employees of the Department of Commerce.

21.4—PILOT REGULATIONS.

21.40—Certificate Required.—No person shall be in command of an aircraft in certificated scheduled air carrier service for the carriage of passengers on a civil airway, or in interstate or foreign air commerce or elsewhere, unless possessed of a valid airline pilot certificate.

21.41—Aircraft Type and Weight.—No person holding a valid airline pilot certificate shall pilot for hire, or carry any person for or without hire other than a properly certificated instructor in, an aircraft of a type, weight or engine classification other than as specified in his airline pilot certificate.

21.42—Night Flying.—Unless an airline pilot has had at least 2 hours of night solo flying within the last preceding 90 days he shall not pilot aircraft carrying passengers for hire, between sunset and sunrise, until after he has taken off and landed, between sunset and sunrise, at least 10 times. At least 3 of such landings shall have been made to a full stop.

21.43—Log-Books.—The following rules will govern pilot log-books:

21.430—GENERAL.—Every certificated airline pilot shall keep an accurate record of his flying time in a log-book in which the entries as to solo flying have been certified to by him before a notary public or by an official of the airline of which he is an employee during such time, and in which the entries as to instruction have been certified to by his instructor.

21.431—CONTENTS.—The log-book shall contain the date of flight, the type of aircraft flown, the aircraft certificate number, a statement of instrument and night flying time, the duration of the flight, and the points between which such flight was made, and, in addition, when any flight results in serious damage to the aircraft, a notation to this effect. Flying instruction time shall be logged in the same manner and, in addition, the instructor shall make complete entries in the log-book of his student showing the nature of each maneuver in which instruction was given and the time spent thereon. The instructor shall attest each such entry with his initials and pilot certificate number and rating thereon. This log-book shall be made available, upon demand, to any authorized representative of the Department of Commerce or State or municipal officer enforcing local regulations or laws involving Federal compliance.

21.44—Foreign Flights.—No person shall be in command of any aircraft of the United States flying in any foreign country unless possessed of an airline pilot certificate with a rating for the type, weight and engine classification of aircraft so flown.

NOTE.—For permission of U. S. aircraft to be flown out of the United States with intent to enter a foreign country, see CAR 70.

Any and all rules or regulations made, established, and issued by the Secretary of Commerce pursuant to law as are inconsistent with the provisions of the above specified civil air regulations are hereby repealed.

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New Part 21
11-15-40

THE UNITED STATES OF AMERICA
CIVIL AERONAUTICS AUTHORITY
WASHINGTON, D. C.

At a session of the Civil Aeronautics Authority
held at its office in Washington, D. C.
on the 15th day of May , 1940

Acting pursuant to the authority vested in it by the Civil Aeronautics Act of 1938, particularly sections 205(a), 601(a), and 602 of said Act, and finding that its action is desirable in the public interest and is necessary to carry out the provisions of and to exercise and perform its powers and duties under said Act, the Civil Aeronautics Authority hereby amends the Civil Air Regulations as follows:

AMENDMENT NO. 49
OF THE CIVIL AIR
REGULATIONS

AIRLINE TRANSPORT
PILOT PRIVILEGES

Effective May 15, 1940 , Part 21, as amended, of the Civil Air Regulations is amended as follows:

1. Section 21.350 is amended to read as follows:

"21.350. The holder of a valid airline transport pilot certificate may pilot an airplane as a second pilot without a weight and engine classification for the particular airplane operated."

2. Section 21.351 is amended to read as follows:

"21.351. The holder of a valid airline transport pilot certificate may pilot airplanes of a weight or engine classification, or of an airplane classification other than that specified in his airline transport pilot certificate, but shall not carry any person in such airplanes other than members of the crew thereof, certificated airmen carried in air carrier airplanes in furtherance of their official duties, or certificated instructors rated for the airplane operated."

By the Authority:

Paul J. Frizzell
Secretary

(SEAL)
DU-390

THE UNITED STATES OF AMERICA
CIVIL AERONAUTICS AUTHORITY
WASHINGTON, D. C.

21

At a session of the Civil Aeronautics Authority
held at its office in Washington, D. C.,
on the 21st day of May, 1940.

Acting pursuant to the authority vested in it by the Civil Aeronautics Act of 1938, particularly sections 205(a) and 602 of said Act, and finding that its action is desirable in the public interest and is necessary to carry out the provisions of and to exercise and perform its powers and duties under said Act, the Civil Aeronautics Authority hereby amends the Civil Air Regulations as follows:

AMENDMENT NO. 53
OF THE CIVIL AIR
REGULATIONS

AIRLINE TRANSPORT PILOT
NIGHT FLYING REQUIREMENTS

Effective June 20, 1940, section 21.162(c) of the Civil Air Regulations is amended so as to read as follows:

"21.162(c). Applicant shall have logged at least 100 hours of night flying in control of an airplane of which at least 50 hours shall have been cross-country; or at least 150 hours in control of airplanes in scheduled air carrier operations and, within the year preceding application, shall have made at least 10 take-offs and 10 landings at night."

By the Authority:

Paul J. Frizzell
Secretary

(SEAL)