CIVIL AERONAUTICS BOARD

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CIVIL AIR REGULATIONS

PART 21.— AIRLINE TRANSPORT PILOT RATING

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PART 21. - AIRLINE TRANSPORT PILOT RATING.

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21.0 PROVISION FOR ISSUANCE. Pursuant to the provisions of the Civil Aeronautics Act of 1938, as amended, empowering the Administrator of Civil Aeronautics to issue airman certificates specifying the capacity in which the holders thereof are authorized to serve as airmen in connection with aircraft, and requiring the Civil Aeronautics Board to prescribe such reasonable rules and regulations governing practices, methods and procedures as the Board may find necessary to provide adequately for safety in air commerce, airline transport pilots will be rated as to competence in accordance with the provisions of the following regulations.

21.1 MINIMUM REQUIREMENTS. To be eligible for an airline transport 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 Administrator 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 Board if the holder does not from time to time keep the Administrator 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 Administrator 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 test prescribed by the Administrator 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 01, 21, 27, 40, 60, 61, and 98, together with such Parts of the provisions of Part 04 as are pertinent to the operations of air carrier aircraft.

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 air carrier flights.

21.1510 (k) The influence of terrain upon meteorological conditions and developments, and the relation thereof to air carrier 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 Administrator.

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 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 proceeding application, shall have made at least 10 take-offs and 10 landings at night.

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 Administrator.

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 inspector of the Administrator):

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 of 10,000 pounds, otherwise those in 20.147 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 inspector of the Administrator may deem necessary to demonstrate the competence of the applicant.

21.176 (g) A right hand and a lefthand 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) Modern 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 maneuvers may be modified by the examining inspector of the Administrator 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 Administrator in writing.

21.2 AIRLINE TRANSPORT PILOT COMPETENCY CERTIFICATE.

21.20 GENERAL. An airline transport pilot competency certificate will be issued by the Administrator 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 Administrator 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 transport 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 transport pilot certificate shall be made to the Administrator upon a form supplied for the purpose.

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

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

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

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 transport 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 AIR TRANSPORTATION SERVICE. Any person holding a valid airline transport pilot certificate shall be considered competent to instruct other pilots in air transportation service in aircraft of a

type, weight and engine classification specified in the airline transport 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 transport pilot certificate shall be considered competent to pilot, solely by instruments, aircraft of a type, weight and engine classification specified in his airline transport pilot certificate, and, in addition thereto, to pilot, solely by instruments, aircraft of another type, weight and engine classifications as specified in § 21.350 and § 21.351.

21.23 DISPLAY. An airline transport 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 Administrator or Board 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 transport pilot certificate, unless sooner suspended or revoked, will remain in force for 6 months.

21.25 RENEWAL. The term of an airline transport 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 Administrator.

21.252 (c) A satisfactory physical examination by a medical examiner of the Administrator of Civil Aeronautics, 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 Administrator; 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 Administrator, the applicant may have his airline transport 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 transport pilot certificate the holder thereof may have issued to him a solo pilot certificate upon application therefor and a satisfactory showing to the Administrator 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 transport pilot certificate is not transferable.

21.27 OPERATION DURING PHYSICAL DEFICIENCY. A certificated airline transport pilot shall not operate any aircraft during the period of any known physical deficiency or increase in physical deficiency, which would render him during that period unable to meet the physical requirements with which he complied in order to secure his certificate.

21.28 SURRENDER. Upon the suspension, revocation or expiration of an airline transport pilot certificate, the holder of such certificate shall, upon request, surrender such certificate to any officer or employee of the Administrator.

21.29 RE-APPLICATION. An applicant for an airline transport pilot certificate who has failed to successfully accomplish any prescribed test for such rating may apply for re-examination thereon after the expiration of 90 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 transport pilot certificate and for the ratings issued with respect thereto) will be conducted by an authorized officer or employee of the Administrator or by a properly qualified person designated for the purpose by the Administrator. During the flight tests the air carrier may have a check pilot on board.

21.31 PHYSICAL EXAMINATION. In connection with the original issuance of any airline transport pilot certificate the physical examination prescribed shall be accomplished by a medical examiner of the Administrator of Civil Aeronautics, 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 Administrator 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 transport 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 1,300 pounds.
(b) Class 2S. - Gross weight between 1,300 and 4,000 pounds, single-engine.
(c) Class 2M. - Gross weight between 1,300 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 transport pilot certificate may pilot an airplane as a second pilot without a weight and engine classification for the particular airplane operated.

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.

21.36 INSPECTION. The applicant for an airline transport 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 Administrator 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 Administrator and the minimum passing grade in the subject of examination or test

shall be 70 percent. 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 Administrator will report the result thereof upon an appropriate form to the Administrator 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 Civil Aeronautics Authority.

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, overseas, or foreign air transportation or elsewhere, unless possessed of a valid airline transport 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 transport pilot certificate, except in accordance with § 21.350 or § 21.351.

21.42 NIGHT FLYING. No certificated airline transport 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 transport 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 transport pilot shall keep an accurate record of his flying time in a log-book in which the entries as to solo flying time have been certified to by him and 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 Administrator or Board 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.)