UNITED STATES OF AMERICA
CIVIL AERONAUTICS BOARD
WASHINGTON, D. C.

Regulations
Serial Number 180

TITLE: LIGHTER - THAN - AIR PILOT CERTIFICATES

Amendment No. ~~127~~ to C. A. R. adding a new Part 22, and amending Sections 20.0 and 60.50

Insert following Part 21 5-1-40

Effective: September 15, 1941

At a session of the Civil Aeronautics Board held at its office in Washington, D. C., on the 15th day of August, 1941.

Acting pursuant to the authority vested in it by the Civil Aeronautics Act of 1938, as amended, particularly sections 205, 601 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 Board amends the Civil Air Regulations as follows:

Effective September 15, 1941, the Civil Air Regulations are amended:

1. By adding a new Part to read as follows:

"PART 22 LIGHTER-THAN-AIR PILOT CERTIFICATES

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22.0 CLASSIFICATION OF LIGHTER-THAN-AIR PILOT CERTIFICATES.

22.00 Grades. Lighter-than-air pilot certificates are classified in the following grades:

(1) Student lighter-than-air pilot certificate

(2) Private lighter-than-air pilot certificate

(3) Commercial lighter-than-air pilot certificate

(4) Free balloon pilot certificate

22.1 LIGHTER-THAN-AIR PILOT CERTIFICATE REQUIREMENTS.

22.10 Student lighter-than-air pilot certificate. To be eligible for a student lighter-than-air pilot certificate an applicant shall comply with the following requirements:

22.100 Age. Applicant shall be at least 16 years of age. If applicant be less than 21 years of age at the time of making application, he shall submit with his application the written consent of either parent, or legal or natural guardian to the issuance of the pilot certificate sought.

22.101 Character. Applicant shall not be temperamentally unsuited for flying.

22.102 Citizenship. Applicant may be of any nationality.

22.103 Education. If an applicant is unable to read, speak, and understand the English language, appropriate operation limitations may be entered upon his student lighter-than-air pilot certificate.

22.104 Physical condition. Applicant shall comply with the following requirements as to physical condition, demonstrated by examinations conducted in accordance with § 22.241

(a) Eye. Applicant shall have:

(1) A visual acuity of at least 20/50 in each eye separately, without correction: Provided, That, if the vision in either or both eyes is poorer than 20/50 and is brought up to 20/30 or better in each such eye by glasses, the applicant may be qualified on condition that such glasses be worn while piloting lighter-than-air aircraft;

(2) An average of 30 millimeters or less, on the depth perception apparatus, with or without glasses: Provided, That, if the depth perception is greater than 30 millimeters without correction and can be corrected to at least 30 millimeters by glasses, the applicat may be qualified upon condition that such glasses be worn while piloting lighter-than-air aircraft;

(3) No diplopia unless corrected by glasses in which case such glasses shall be worn while piloting lighter-than-air aircraft; and

(4) No serious pathology of the eye.

(b) Ear, nose, throat, and equilibrium. Applicant shall be able to hear the whispered voice at 3 feet; shall have no acute or chronic disease of the internal ear, no disease or malformation of the nose or throat which may interfere with or be aggravated by flying, and no disturbance in equilibrium.

(c) General physical condition. Applicant shall have no organic or functional disease or structural defect or limitation which would interfere with the safe piloting of lighter-than-air aircraft.

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

(e) Exceptions to physical requirements. An applicant may receive a certificate in spite of a failure to comply with the above physical requirements, if his physical deficiency is such as not to interfere with his safe piloting of lighter-than-air aircraft. Any applicant receiving a certificate under these conditions may be restricted to particular types of operation or particular lighter-than-air aircraft.

22.105 Aeronautical knowledge. No requirement is prescribed.

22.106 Aeronautical experience. No requirement is prescribed.

22.107 Aeronautical skill. No requirement is prescribed.

22.11 Private lighter-than-air pilot certificate. To be eligible for a private lighter-than-air pilot certificate an applicant shall comply with the following requirements:

22.110 Age. Applicant shall be at least 18 years of age. If applicant be less than 21 years of age at the time of making application, he shall submit with his application the written consent of either parent, or legal or natural guardian to the issuance of the pilot certificate sought.

22.111 Character. Same as in § 22.101.

22.112 Citizenship. Same as in § 22.102.

22.113 Education. Applicant shall be able to read, speak and understand the English language.

22.114 Physical condition. The same as in § 22.104, except, that a certificate may be issued to an applicant who does not meet these physical requirements if his flying experience gained prior to his disability offsets his physical deficiency. Such applicant may be restricted to particular operations or particular lighter-than-air aircraft.

22.115 Aeronautical knowledge. Applicant shall pass a written examination covering so much of the provisions of Parts 01, 22 and 60 as are pertinent to his certificate, prevailing weather conditions in the United States as encountered in flying, and the forecasting thereof, the analyzing of weather maps and sequence reports as furnished by the United States Weather Bureau, practical air navigation problems and the use of maps, navigation by terrain (pilotage) and by dead reckoning, including the use of instruments and other aids to navigation in visual-contact flying, and the general servicing and operation of airships.

22.116 Aeronautical experience. Applicant shall have logged at least 50 flight hours actually at the controls of airships, including not less than 5 hours of solo flight and not less than 5 hours of cross-country flight. At least 5 hours of such time shall have been logged within the 60 days immediately preceding the date of filing the application.

22.117 Aeronautical skill. Applicant shall satisfactorily demonstrate his ability to pilot airships in solo flight and in addition to normal take-offs and landings to perform satisfactorily the following maneuvers:

(a) A series of right and left turns and figure eights;

(b) Ascents and descents at rates up to 600 feet per minute not permitting gas pressure to exceed $1\frac{1}{2}$ inches of water during ascents or to fall below 1 inch of water during descents;

(c) Land the airship 200 pounds heavy and 200 pounds light.

(d) Such other maneuvers as the Administrator deems necessary.

22.118 Military competence. An applicant who is or was within the 60 days preceding application a member of the regular Army, Navy, Marine Corps or Coast Guard or a reserve member of any such service on active duty for a period of at least one year will be deemed to have met the requirements of §§ 22.115, 22.116 and 22.117 if he submits to an inspector of the Administrator a certificate from the appropriate officer in charge of flying in his service, stating that the applicant is, or was within the 60 days preceding application, on flying status as a lighter-than-air pilot and competent to pilot airships.

22.12 Commercial lighter-than-air pilot certificate. To be eligible for a commercial lighter-than-air pilot certificate an applicant shall comply with the following requirements:

22.120 Age. Applicant shall be at least 18 years of age. If applicant be less than 21 years of age at the time of making application, he shall submit with his application the written consent of either parent, or legal or natural guardian to the issuance of the pilot certificate sought.

22.121 Character. Applicant shall not be temperamentally unsuited for flying.

22.122 Citizenship. Applicant shall be:

(a) A citizen of the United States, or

(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

(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 is, in such case, subject to revocation 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.

22.123 Education. Applicant shall be able to read, speak, write, and understand the English language.

22.124 Physical requirements. Applicant shall comply with the following requirements as to physical condition:

(a) Eye. Applicant shall have:

(1) 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 upon condition that correcting glasses be worn while piloting lighter-than-air aircraft;

(2) An average depth perception of 30 millimeters or less with or without glasses: Provided, That, if the depth perception is greater than 30 millimeters without correction, and can be corrected to at least 30 millimeters by glasses, the applicant may be qualified upon condition that correcting glasses be worn while piloting lighter-than-air aircraft;

(3) No diplopia;

(4) Not more than one diopter of hyperphoria;

(5) Properly balanced eye muscles with an abduction of three diopters or more;

(6) Sufficient accommodation to pass a test prescribed by the Administrator based primarily upon ability to read official aeronautical maps;

(7) Normal fields of vision; and

(8) No pathology of the eye.

(b) Ear, nose, throat, and equilibrium. Applicant shall be able to hear the whispered voice at 8 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 of equilibrium.

(c) General physical condition. Applicant shall have no organic or functional disease or structural defect or limitation which would interfere with the safe piloting of lighter-than-air aircraft.

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

(e) Exceptions to physical requirements. Applicant may receive a certificate in spite of a failure to comply with the above physical requirements if his flying experience gained prior to his disability offsets such physical deficiency, in which case the applicant may be restricted to particular operations or particular lighter-than-air aircraft endorsed upon the certificate.

22.125 Aeronautical knowledge. The same as in § 22.115 and, in addition, the applicant shall pass a written examination on the theory and practice of flight, the maintenance of non-rigid airships and the maintenance and proper use of airship power units, the use of such instruments and other navigational aids, both in airships and on the ground, necessary for the navigation of airships by instrument, and meteorology as applied to weather analysis and forecast.

22.126 Aeronautical experience. Applicant shall show a total of at least 200 hours of flight time actually at the controls of airships of which at least 5 hours shall have been logged within the 60 days immediately preceding the date of the filing of the application and including:

(a) Not less than 50 hours in solo flight;

(b) Not less than 10 hours in cross-country flight;

(c) Not less than 10 hours in flight during the hours of darkness;

(d) Not less than 20 hours of instrument instruction and practice in flight: Provided, That not more than 10 hours of this requirement may be instruction and practice under simulated conditions not in flight when approved by the Administrator; and

(e) In lieu of not to exceed 50 hours of the 200-hour total flight time requirement, applicant may show an equal or greater amount of flight time while participating as a crew member when acceptable to the Administrator.

22.127 Aeronautical skill. Same as in § 22.117 except that:

(a) In the maneuvers required by § 22.117(a) the altitude of the ship shall not vary up or down in excess of 100 feet of the assigned flight altitude.

(b) In the maneuvers required by § 22.117(b) ascents and descents at rates up to 1200 feet per minute shall be made under the same pressure limitations.

(c) Applicant shall also demonstrate satisfactorily his ability to perform, solely by instrument, the following:

(1) Straight, level flight for given period of time;

(2) Moderate 180 degree and 360 degree precision turns in both directions;

(3) Ascents and descents at rates up to 1000 feet per minute;

(4) Climbing and diving turns and recovery therefrom;

(5) Estimating arrival time taking into account wind, airspeed and drift while in flight or under simulated conditions;

(6) Such other maneuvers as the Administrator deems necessary.

22.128 Radio skill. Applicant shall demonstrate satisfactorily his ability to perform while in flight the following:

(a) Tuning radio;

(b) Orientation;

(c) Following radio range;

(d) Locating cone of silence;

(e) Letting down through on the range by a satisfactory airship instrument approach procedure for the particular airport used in connection with the test; and

(f) Such other maneuvers as the Administrator deems necessary.

22.129 Military competence. An applicant who within 60 days preceding the application has been an active member of the regular Army, Navy, Marine Corps, or Coast Guard or a reserve member of any such service on active duty for a period of not less than 1 year will be deemed to have met the requirements of §§ 22.125, 22.126, 22.127 and 22.128 if he submits to an inspector of the Administrator a certificate from the appropriate officer in charge of flying in his service that he was on flying status as a lighter-than-air pilot with an instrument rating at the time of his separation from the service and was at that time competent to pilot airships.

22.13 Free balloon pilot certificate. To be eligible for a free balloon pilot certificate an applicant shall comply with the following requirements:

22.130 Age. Same as § 22.110.

22.131 Character. Applicant shall not be temperamentally unsuited for flying.

22.132 Citizenship. Applicant may be of any nationality.

22.133 Education. Applicant shall be able to read, speak, write and understand the English language.

22.134 Physical condition. Same as § 22.114.

22.135 Aeronautical knowledge. Same as § 22.115.

22.136 Aeronautical experience. Applicant shall have had a minimum of 6 instruction flights in free balloons of not less than 1 hour duration each and shall have logged at least 1 hour of actual solo flight time within the 90 days immediately preceding the date of filing the application. The date of such solo flight shall be certified to by the instructor on the student lighter-than-air pilot certificate.

22.137 Aeronautical skill. Applicant shall demonstrate satisfactorily his ability to pilot and maneuver a free balloon in actual solo flight.

22.2 LIGHTER-THAN AIR PILOT CERTIFICATES

22.20 Application. Application for a lighter-than-air pilot certificate shall be made upon the form prescribed and furnished by the Administrator.

22.200 Revocation. No person whose lighter-than-air pilot certificate has been revoked shall apply for or be issued a pilot certificate for a period of 1 year after the revocation except as the order of revocation may otherwise provide.

22.201 Nontransferability. A lighter-than-air pilot certificate is not transferable.

22.21 Duration. A lighter-than-air pilot certificate shall be of 60 days' duration and, unless the holder thereof is otherwise notified by the Administrator within such period, shall continue in effect indefinitely thereafter, unless suspended or revoked, except that it shall immediately expire (1) at the end of each designated period* after the date of issuance thereof if the holder of such certificate fails to secure an endorsement by an authorized inspector of the Administrator within the last 45 days of each such period, or (2) at any time an authorized inspector of the Administrator shall refuse to endorse such certificate after

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* The designated period for lighter-than-air pilot certificates will ordinarily be a period of 1 year. This period will be referred to hereafter as the "endorsement period."

inspection or examination.

22.22 Periodic endorsement requirements. No lighter-than-air pilot certificate shall receive a periodic endorsement unless the holder thereof (1) shall make application for endorsement on the applicable form prescribed and furnished by the Administrator and (2) shall have logged the hours of solo flight time hereinafter required with respect to the following classes of lighter-than-air pilot certificates or in lieu thereof satisfactorily passes the flight test required for the original issuance of his certificate and (3) shall have satisfactorily passed the physical examination hereinafter required with respect to the following classes of lighter-than-air pilot certificates:

(a) Student lighter-than-air pilot

(1) No flight time required.

(2) A physical examination showing at least the same physical condition as that required for the issuance of a student lighter-than-air pilot certificate within the 14 months preceding the expiration of the endorsement period.

(b) Private lighter-than-air pilot

(1) Fifteen hours of solo flight time within the endorsement period in an airship.

(2) A physical examination showing at least the same physical condition as that required for the issuance of a private lighter-than-air pilot certificate within the 14 months immediately preceding the expiration of the endorsement period.

(c) Commercial lighter-than-air pilot

(1) Twenty hours of solo flight time within the endorsement period in an airship, of which not less than 10 hours shall be solely by instruments. In lieu of not more than 5 hours of this requirement the applicant may show an equal or greater amount of practice under simulated conditions not in flight.

(2) A physical examination showing at least the same physical condition as as that required for the issuance of a commercial pilot certificate within the 60 days immediately preceding the expiration of the endorsement period.

(d) Free balloon pilot

(1) No flight time required.

(2) A physical examination showing at least the same physical condition as that required for the issuance of a free balloon pilot certificate within the 14 months preceding the expiration of the endorsement period.

22.23 Special issuance of expired certificates.

(a) The holder of a lighter-than-air pilot certificate of private or commercial grade which has expired because of failure to secure the necessary flight time may, upon application to any inspector, have the expired certificate endorsed as conveying the privileges of a student lighter-than-air pilot certificate until 1 year from the date of original expiration. After such endorsement, the holder may

exercise all the privileges incident to a student lighter-than-air pilot certificate which has been endorsed to permit solo flight.

(b) The holder of an expired private or commercial lighter-than-air pilot certificate, if application is made within 1 year following its expiration, may secure a new private or commercial lighter-than-air pilot certificate, as the case may be, by showing that, as of the date of application, he has met the requirements set forth in § 22.22 for periodic endorsement of his certificate. If application is made more than 1 year following the expiration of a lighter-than-air pilot certificate, the holder thereof may secure a new private or commercial lighter-than-air pilot certificate by showing that, as of the date of application, in the case of a private pilot, he has met the requirements for original issuance of a private lighter-than-air pilot certificate set forth in § 22.11, except for § 22.115, and in the case of a commercial pilot, he has met the requirements for original issuance of a commercial lighter-than-air pilot certificate set forth in § 22.12, except for § 22.125: Provided, That the applicant shall pass a written examination on the provisions of the Civil Air Regulations which may be appropriate to his certificate.

(c) The holder of an expired free balloon pilot certificate may secure a new certificate upon proof that he has passed a physical examination showing at least the same physical condition as that required for the issuance of a free balloon pilot certificate within the 14 months preceding the date of application.

(d) No endorsement shall be made under subsection (a) of this section and no certificate shall be issued under subsections (b) or (c) of this section if the lighter-than-air pilot certificate expired while it was the subject of a revocation or suspension proceeding or expired because of the refusal of an inspector to endorse.

(e) In applying this section, the time within which physical examinations and flight time must be secured in order to comply with the periodic endorsement requirements shall be computed from the date of application for special issuance, rather than the date of expiration of the endorsement period as is provided in § 22.22

22.24 *Examinations and tests.*

22.240 General procedure. The examinations and tests prescribed in this Part shall be conducted by an authorized officer or employee of the Administrator or by a properly qualified person designated for the purpose by the Administrator. All examinations and tests will be held at such times and places as the Administrator may designate.

22.241 Physical examinations. The following rules will govern the physical examinations given in connection with any lighter-than-air pilot certificate:

(a) The appropriate physical examination prescribed for the original issuance of a lighter-than-air pilot certificate shall be passed before any practical or theoretical test or other examination will be given, and shall be completed within the nine months preceding application for a free balloon pilot certificate or private lighter-than-air pilot certificate, or within the four months preceding application for a commercial lighter-than-air pilot certificate.

(b) In lieu of a physical examination conducted by an authorized medical examiner of the Administrator which is required for issuance or endorsement of a lighter-than-air pilot certificate, a certificate from a medical officer on active duty with the United States Army, Navy, Marine Corps, or Coast Guard, who is authorized to conduct physical examinations for flying, stating that he examined the applicant, giving the date of the physical examination, and certifying that at the time of the examination the applicant was on flying status and met the physical requirements for flying prescribed for his military service, will be accepted for any lighter-than-air pilot certificate provided for in this Part: Provided, That the physical qualifications of such military examination are not less than those required by these regulations for the grade of pilot certificate applied for.

22.242 Reexaminations.

(a) An applicant for a private or commercial lighter-than-air pilot certificate or for a free balloon pilot certificate who has failed to pass any prescribed theoretical examination may apply for reexamination at any time after 30 days of the day of failure.

(b) An applicant for a private or commercial lighter-than-air pilot certificate or for a free balloon pilot certificate who has failed to pass any practical examination or test may apply for reexamination only after he has logged at least 3 additional hours of flight time.

22.243 Aircraft used in tests. The applicant shall furnish suitable certificated aircraft for any flight test required.

22.3 PILOT REGULATIONS

22.31 Flight limitations and privileges.

22.310 Student lighter-than-air pilot.

(a) The holder of a student lighter-than-air pilot certificate shall not operate a free balloon in solo flight until

(1) he has demonstrated thorough familiarity with the provisions of Part 60 dealing with contact flight by passing a written examination of such provisions and such fact has been certified to by his instructor on the student lighter-than-air pilot certificate;

(2) he shall have had a minimum of six instruction flights in free balloons of not less than 1 hour duration each and such fact has been certified to by his instructor on the student pilot certificate.

(b) The holder of a student lighter-than-air pilot certificate shall not pilot an airship in solo flight until

(1) he has demonstrated thorough familiarity with the provisions of Part 60 dealing with contact flight by passing a written examination of such provisions and such fact has been certified to by his instructor on the student lighter-than-air pilot certificate;

(2) he shall have had a minimum of six instruction flights in free balloons of not less than 1 hour duration each and shall have logged at least 1 hour of actual solo flight in a free balloon and such fact shall be certified to by his instructor on the student lighter-than-air pilot certificate. If the student pilot possesses a free balloon pilot certificate such certification shall not be required;

(3) he shall have had a minimum of 35 hours of dual instruction in airships which shall include level flight, right and left turns, landings and take-offs and shall be deemed competent by his instructor to make such flight, which fact shall be certified to by his instructor on the student lighter-than-air pilot certificate.

(c) The holder of a student lighter-than-air pilot certificate shall not pilot any lighter-than-air aircraft carrying any person other than a certificated commercial lighter-than-air pilot, a member of the crew, or another certificated student lighter-than-air pilot whose presence in the aircraft is authorized by the instructor under whose direction the flight is being made. Such person shall not pilot any lighter-than-air aircraft for hire.

22.311 Private lighter-than-air pilot.

(a) The holder of a private lighter-than-air pilot certificate shall not pilot an airship carrying any persons or property for hire nor give any flight or instrument instruction therein.

(b) The holder of such certificate may pilot a free balloon for hire and may give flight instruction therein.

22.312 Commercial lighter-than-air pilot. The holder of a commercial lighter-than-air pilot certificate may pilot for hire any lighter-than air aircraft carrying passengers or property and may give either flying instruction or instrument instruction therein.

22.313 Free balloon pilot. The holder of a free balloon pilot certificate shall not pilot any lighter-than-air aircraft except a free balloon but may pilot a free balloon for hire carrying passengers or property and give flight instruction therein.

22.32 Miscellaneous.

22.320 Display. The holder of any lighter-than-air pilot certificate shall keep his certificate in his personal possession at all times when piloting lighter-than-air aircraft and shall present the same for inspection upon request of any passenger, any authorized officer or employee of the Administrator or Board and of any State or municipal official charged with the duty of enforcing local laws or regulations involving Federal compliance.

22.321 Surrender. The holder of a lighter-than-air pilot certificate shall surrender, upon request, such certificate to any officer or employee of the Administrator if it has been suspended or revoked or if it has expired.

22.322 Operation during physical deficiency. The holder of a lighter-than-air pilot certificate shall not pilot any lighter-than-air aircraft during the period of any known 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.

22.323 Inspection. An applicant for, or the holder of, a lighter-than-air pilot certificate shall offer full cooperation with respect to any inspection or examination which may be made of such person upon proper request by any authorized representative of the Administrator.

22.324 Simulated instrument flight. No person shall pilot a lighter-than-air aircraft in flight under simulated instrument conditions unless a certificated lighter-than-air safety pilot shall be present at all times and have ready access to the controls and adequate vision from the aircraft.

22.325 Log-books. Every certificated lighter-than-air pilot and every person receiving flight instruction shall keep an accurate record of his flying time in a log-book in which the entries with respect to solo flying time shall be certified to by him and such entries respecting dual instruction shall have been certified to by the lighter-than-air pilot giving the instruction. This log-book shall be presented for inspection upon request and reasonable notice to any authorized representative of the Administrator or Board or of any State or municipal officer enforcing local regulations or laws involving Federal compliance.

22.3250 Form. Such log-book shall be a bound record and the entries shall be accurate, legible and in ink or indelible pencil so arranged as to facilitate easy reference thereto.

22.3251 Content. The log-book shall contain entries including at least the following: The date of flight; the make and model of the lighter-than-air aircraft flown; the aircraft identification mark; a statement classifying the type of flight (whether solo, dual instruction, instrument or night flying time); the duration of the flight; 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.

22.3252 Logging of flight time. No flight time shall be logged as such unless the lighter-than air aircraft flown is a public or certificated aircraft.

22.3253 Logging of instrument flight time. No instrument flight time shall be logged as such unless the lighter-than-air 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.

22.4 DEFINITIONS.

22.40 Lighter-than-air aircraft. A lighter-than-air aircraft is an aircraft whose support is chiefly due to buoyancy derived from aerostatic forces.

22.400 Free balloon. A free balloon, as used in this Part, shall mean a lighter-than-air aircraft not restrained from free flight by any connection with the ground nor equipped with any powerplant or propelling device, the ascent and descent of which may be controlled by releasing ballast or gas and the direction of flight of which is determined by the wind.

22.401 Airship. An airship, as used in this Part, shall mean a lighter-than-air aircraft other than a fixed or free balloon.

22.41 Solo flight time. Solo flight time, as used in this Part, shall mean flight time when the pilot is in command and actually at the controls of the lighter-than-air aircraft regardless of the presence of any other crew members in the aircraft who may act under his direction.

22.410 Actual solo flight time. Actual solo flight time, as used in this Part, shall mean flight time when the pilot is the sole occupant of the lighter-than-air aircraft.

22.42 Dual instruction. Dual instruction, as used in this Part, shall mean flight time as a student at the controls of a lighter-than-air aircraft under the immediate direction of a pilot who is in command of the aircraft and authorized to give instruction therein."

2. By amending Part 20, section 20.0 to read as follows:

"20.0 Classification of pilot certificates.

(a) Aircraft pilot certificates, other than glider or lighter-than-air, are classified in the following ascending grades:

(1) Student pilot certificate

(2) Private pilot certificate

(3) Commercial pilot certificate

(4) Airline transport pilot certificate (provided for in all respects in Part 21).

(b) Glider pilot certificates are classified in the following ascending grades:

(1) Student glider pilot certificate

(2) Private glider pilot certificate

(3) Commercial glider pilot certificate

(c) Lighter-than-air pilot certificates are provided for in all respects in Part 22. The provisions of Part 20 shall not apply to lighter-than-air pilot certificates or to lighter-than-air aircraft."

3. By amending Part 60, section 60.50 to read as follows:

"60.50 Pilot. No flight shall be made in civil aircraft unless the pilot in charge---

(a) holds a valid instrument rating; or

(b) holds a valid airline transport pilot certificate; or

(c) holds a valid commercial lighter-than-air pilot certificate; or

(d) is an active member of the Regular Army, Navy, Marine Corps, or Coast Guard, or a reserve member of any such service on extended active duty for at least 1 year, and who holds at least a private pilot certificate issued by the Administrator and a military instrument flying rating, or equivalent, issued by his service."

By the Civil Aeronautics Board:

/s/ *Thomas G. Early*

Thomas G. Early
Secretary

(S E A L)

CIVIL AERONAUTICS BOARD

WASHINGTON, D. C.

CIVIL AIR REGULATIONS

PART 22—LIGHTER-THAN-AIR PILOT CERTIFICATES



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CIVIL AIR REGULATIONS

PART 22—LIGHTER-THAN-AIR PILOT CERTIFICATES

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22.0 CLASSIFICATION OF LIGHTER-THAN-AIR PILOT CERTIFICATES

22.00 Grades. Lighter-than-air pilot certificates are classified in the following grades:
(1) Student lighter-than-air pilot certificate.
(2) Private lighter-than-air pilot certificate.
(3) Commercial lighter-than-air pilot certificate.
(4) Free balloon pilot certificate.

22.1 LIGHTER-THAN-AIR PILOT CERTIFICATE REQUIREMENTS

22.10 Student lighter-than-air pilot certificate. To be eligible for a student lighter-than-air pilot certificate an applicant shall comply with the following requirements:

22.100 Age. Applicant shall be at least 16 years of age. If applicant be less than 21 years of age at the time of making application, he shall submit with his application the written consent of either parent, or legal or natural guardian to the issuance of the pilot certificate sought.

22.101 Character. Applicant shall not be temperamentally unsuited for flying.

22.102 Citizenship. Applicant shall be:
(*a*) A citizen of and of unquestionable loyalty to the United States, or
(*b*) A person who is in sympathy with the objectives of the United States and who is a trustworthy citizen of a friendly foreign government not under the domination of or associated with any government with which the United States is at war.

22.103 Education. If an applicant is unable to read, speak, and understand the English language, appropriate operation limitations may be entered upon his student lighter-than-air pilot certificate.

22.104 Physical condition. Applicant shall meet the physical standards of the Third Class prescribed in Part 29.

22.105 Aeronautical knowledge. No requirement is prescribed.

22.106 Aeronautical experience. No requirement is prescribed.

22.107 Aeronautical skill. No requirement is prescribed.

22.11 Private lighter-than-air pilot certificate. To be eligible for a private lighter-than-air pilot certificate an applicant shall comply with the following requirements:

22.110 Age. Applicant shall be at least 18 years of age. If applicant be less than 21 years of age at the time of making application, he shall submit with his application the written consent of either parent, or legal or natural guardian to the issuance of the pilot certificate sought.

22.111 Character. Same as in § 22.101.

22.112 Citizenship. Same as in § 22.102.

22.113 Education. Applicant shall be able to read, speak, and understand the English language.

22.114 Physical condition. Applicant shall meet the physical standards of the Third Class prescribed in Part 29.

22.115 Aeronautical knowledge. Applicant shall pass a written examination covering so much of the provisions of Parts 01, 22, and 60 as are pertinent to his certificate, prevailing weather conditions in the United States as encountered in flying and the forecasting thereof, the analyzing of weather maps and sequence reports as furnished by the United States Weather Bureau, practical air navigation problems and the use of maps, navigation by terrain (pilotage) and by dead reckoning, including the use of instruments and other aids to navigation in visual-contact flying, and the general servicing and operation of airships.

22.116 Aeronautical experience. Applicant shall have logged at least 50 flight hours actually at the controls of airships, including not less than 5 hours of solo flight and not less than 5 hours of cross-country flight. At least 5 hours of such time shall have been logged within the 60 days immediately preceding the date of filing the application.

22.117 Aeronautical skill. Applicant shall satisfactorily demonstrate his ability to pilot airships in solo flight and in addition to normal take-offs and landings to perform satisfactorily the following maneuvers:

(*a*) A series of right and left turns and figure eights;

(*b*) Ascents and descents at rates up to 600 feet per minute not permitting gas pressure to exceed 1½ inches of water during ascents or to fall below 1 inch of water during descents;

(*c*) Land the airship 200 pounds heavy and 200 pounds light;

(*d*) Such other maneuvers as the Administrator deems necessary.

22.118 Military competence. An applicant who is or was within the 60 days preceding application a member of the regular Army, Navy, Marine Corps, or Coast Guard or a reserve member of any such service on active duty for a period of at least one year will be deemed to have met the requirements of §§ 22.115, 22.116, and 22.117 if he submits to an inspector of the Administrator a certificate from the appropriate officer in charge of flying in his service, stating that the applicant is, or was within the 60 days preceding application, on flying status as a lighter-than-air pilot and competent to pilot airships.

22.12 Commercial lighter-than-air pilot certificate. To be eligible for a commercial lighter-than-air pilot certificate an applicant shall comply with the following requirements:

22.120 Age. Applicant shall be at least 18 years of age. If applicant be less than 21 years of age at the time of making application, he shall submit with his application the written consent of either parent, or legal or natural guardian to the issuance of the pilot certificate sought.

22.121 Character. Applicant shall not be temperamentally unsuited for flying.

22.122 Citizenship. Applicant shall be:

(*a*) A citizen of and of unquestionable loyalty to the United States, or

(*b*) A person who is in sympathy with the objectives of the United States and who is a trustworthy citizen of a friendly foreign government not under the domination of or associated with any government with which the United States is at war and which government grants reciprocal commercial pilot privileges to citizens of the United States on equal terms and conditions with citizens of such foreign government.

22.123 Education. Applicant shall be able to read, speak, write, and understand the English language.

22.124 Physical condition. Applicant shall meet the physical standards of the Second Class prescribed in Part 29.

22.125 Aeronautical knowledge. The same as in § 22.115, and, in addition, the applicant shall pass a written examination on the theory and practice of flight, the maintenance of nonrigid airships and the maintenance and proper use of airship power units, the use of such instruments and other navigational aids, both in airships and on the ground, necessary for the navigation of airships by instrument, and meteorology as applied to weather analysis and forecast.

22.126 Aeronautical experience. Applicant shall show a total of at least 200 hours of flight time actually at the controls of airships of which at least 5 hours shall have been logged within the 60 days immediately preceding the date of the filing of the application and including:

(*a*) Not less than 50 hours in solo flight;

(*b*) Not less than 10 hours in cross-country flight;

(*c*) Not less than 10 hours in flight during the hours of darkness;

(*d*) Not less than 20 hours of instument instruction and practice in flight: *Provided,* That not more than 10 hours of this requirement may be instruction and practice under simulated conditions not in flight when approved by the Administrator; and

(*e*) In lieu of not to exceed 50 hours of the 200-hour total flight time requirement, applicant may show an equal or greater amount of flight time while participating as a crew member when acceptable to the Administrator.

22.127 Aeronautical skill. Same as in § 22.117 except that:

(*a*) In the maneuvers required by § 22.117 (*a*) the altitude of the ship shall not vary up or down in excess of 100 feet of the assigned flight altitude.

(*b*) In the maneuvers required by § 22.117 (*b*) ascents and descents at rates up to 1,200 feet per minute shall be made under the same pressure limitations.

(*c*) Applicant shall also demonstrate satisfactorily his ability to perform, solely by instrument, the following:

(1) Straight, level flight for given period of time;

(2) Moderate 180° and 360° precision turns in both directions;
(3) Ascents and descents at rates up to 1,000 feet per minute;
(4) Climbing and diving turns and recovery therefrom;
(5) Estimating arrival time taking into account wind, airspeed, and drift while in flight or under simulated conditions;
(6) Such other maneuvers as the Administrator deems necessary.

22.128 Radio skill. Applicant shall demonstrate satisfactorily his ability to perform while in flight the following:
(*a*) Tuning radio;
(*b*) Orientation;
(*c*) Following radio range;
(*d*) Locating cone of silence;
(*e*) Letting-down-through on the range by a satisfactory airship instrument approach procedure for the particular airport used in connection with the test; and
(*f*) Such other maneuvers as the Administrator deems necessary.

22.129 Military competence. An applicant who within 60 days preceding the application has been an active member of the regular Army, Navy, Marine Corps, or Coast Guard or a reserve member of any such service on active duty for a period of not less than 1 year will be deemed to have met the requirements of §§ 22.125, 22.126, 22.127 and 22.128 if he submits to an inspector of the Administrator a certificate from the appropriate officer in charge of flying in his service that he was on flying status as a lighter-than-air pilot with an instrument rating at the time of his separation from the service and was at that time competent to pilot airships.

22.13 Free balloon pilot certificate. To be eligible for a free balloon pilot certificate an applicant shall comply with the following requirements:

22.130 Age. Same as § 22.110.

22.131 Character. Applicant shall not be temperamentally unsuited for flying.

22.132 Citizenship. Same as § 22.102.

22.133 Education. Applicant shall be able to read, speak, write, and understand the English language.

22.134 Physical condition. Same as § 22.114.

22.135 Aeronautical knowledge. Same as § 22.115.

22.136. Aeronautical experience. Applicant shall have had a minimum of 6 instruction flights in free balloons of not less than 1 hour duration each and shall have logged at least 1 hour of actual solo flight time within the 90 days immediately preceding the date of filing the application. The date of such solo flight shall be certified to by the instructor on the student lighter-than-air pilot certificate.

22.137 Aeronautical skill. Applicant shall demonstrate satisfactorily his ability to pilot and maneuver a free balloon in actual solo flight.

22.2 LIGHTER-THAN-AIR PILOT CERTIFICATES

22.20 Application. Application for a lighter-than-air pilot certificate shall be made upon the form prescribed and furnished by the Administrator.

22.200 Revocation. No person whose lighter-than-air pilot certificate has been revoked shall apply for or be issued a pilot certificate for a period of 1 year after the revocation except as the order of revocation may otherwise provide.

22.201 Nontransferability. A lighter-than-air pilot certificate is not transferable.

22.21 Duration. A lighter-than-air pilot certificate shall be of 60 days' duration and, unless the holder thereof is otherwise notified by the Administrator within such period, shall continue in effect indefinitely thereafter, unless suspended or revoked, except that it shall immediately expire (1) at the end of each designated period [1] after the date of issuance thereof if the holder of such certificate fails to secure an endorsement by an authorized inspector of the Administrator within the last 45 days of each such period, or (2) at any time an authorized inspector of the Administrator shall refuse to endorse such certificate after inspection or examination.

[1] The designated period for lighter-than-air pilot certificates will ordinarily be a period of 1 year. This period will be referred to hereafter, as the "endorsement period."

22.22 Periodic endorsement requirements. No lighter-than-air pilot certificate shall receive a periodic endorsement unless the holder thereof (1) shall make application for endorsement on the applicable form prescribed and furnished by the Administrator and (2) shall have logged the hours of solo flight time hereinafter required with respect to the following classes of lighter-than-air pilot certificates or in lieu thereof satisfactorily passes the flight test required for the original issuance of his certificate:

(*a*) Student lighter-than-air pilot:

(1) No flight time required.

(*b*) Private lighter-than-air pilot:

(1) Fifteen hours of solo flight time within the endorsement period in an airship.

(*c*) Commercial lighter-than-air pilot:

(1) Twenty hours of solo flight time within the endorsement period in an airship, of which not less than 10 hours shall be solely by instruments. In lieu of not more than 5 hours of this requirement the applicant may show an equal or greater amount of practice under simulated conditions not in flight.

(*d*) Free balloon pilot:

(1) No flight time required.

22.23 Special issuance of expired certificates.

(*a*) The holder of a lighter-than-air pilot certificate of private or commercial grade which has expired because of failure to secure the necessary flight time may, upon application to any inspector, have the expired certificate endorsed as conveying the privileges of a student lighter-than-air pilot certificate until 1 year from the date of original expiration. After such endorsement, the holder may exercise all the privileges incident to a student lighter-than-air pilot certificate which has been endorsed to permit solo flight.

(*b*) The holder of an expired private or commercial lighter-than-air pilot certificate, if application is made within 1 year following its expiration, may secure a new private or commercial lighter-than-air pilot certificate, as the case may be, by showing that, as of the date of application, he has met the requirements set forth in § 22.22 for periodic endorsement of his certificate. If application is made more than 1 year following the expiration of a lighter-than-air pilot certificate, the holder thereof may secure a new private or commercial lighter-than-air pilot certificate by showing that, as of the date of application, in the case of a private pilot, he has met the requirements for original issuance of a private lighter-than-air pilot certificate set forth in § 22.11, except for § 22.115, and in the case of a commercial pilot, he has met the requirements for original issuance of a commercial lighter-than-air pilot certificate set forth in § 22.12, except for § 22.125: *Provided,* That the applicant shall pass a written examination on the provisions of the Civil Air Regulations which may be appropriate to his certificate.

(*c*) The holder of an expired free balloon pilot certificate may secure a new certificate by meeting the physical standards of the Third Class prescribed in Part 29.

(*d*) No endorsement shall be made under subsection (*a*) of this section and no certificate shall be issued under subsections (*b*) or (*c*) of this section if the lighter-than-air pilot certificate expired while it was the subject of a revocation or suspension proceeding or expired because of the refusal of an inspector to endorse.

(*e*) In applying this section, the time within which flight time must be secured in order to comply with the periodic endorsement requirements shall be computed from the date of application for special issuance, rather than the date of expiration of the endorsement period as provided in § 22.22.

22.24 Examinations and tests.

22.240 General procedure. The examinations and tests prescribed in this Part shall be conducted by an authorized officer or employee of the Administrator or by a properly qualified person designated for the purpose by the Administrator. All examinations and tests will be held at such times and places as the Administrator may designate.

22.241 The appropriate physical examination prescribed for the original issuance of a lighter-than-air pilot certificate shall be passed before any practical or theoretical test or other examination will be given.

22.242 Reexaminations.

(*a*) An applicant for a private or commercial lighter-than-air pilot certificate or for a free balloon pilot certificate who has failed to pass any prescribed theoretical examination may apply for reexamination at any time after 30 days of the day of failure, or after he has received not less than 5 hours instruction on each subject of the examination failed from a certificated ground

instructor rated for such subject and presents a statement from such instructor showing the amount of instruction given and stating that he deems the applicant qualified to pass the required examination in such subject.

(*b*) An applicant for a private or commercial lighter-than-air pilot certificate or for a free balloon pilot certificate who has failed to pass any practical examination or test may apply for reexamination only after he has logged at least 3 additional hours of flight time.

22.243 Aircraft used in tests. The applicant shall furnish suitable certificated aircraft for any flight test required.

22.3 PILOT REGULATIONS

22.31 Flight limitations and privileges.

22.310 Student lighter-than-air pilot.

(*a*) The holder of a student lighter-than-air pilot certificate shall not operate a free balloon in solo flight until

(1) He has demonstrated thorough familiarity with the provisions of Part 60 dealing with contact flight by passing a written examination of such provisions and such fact has been certified to by his instructor on the student lighter-than-air pilot certificate;

(2) He shall have had a minimum of six instruction flights in free balloons of not less than 1 hour duration each and such fact has been certified to by his instructor on the student pilot certificate.

(*b*) The holder of a student lighter-than-air pilot certificate shall not pilot an airship in solo flight until

(1) He has demonstrated thorough familiarity with the provisions of Part 60 dealing with contact flight by passing a written examination of such provisions and such fact has been certified to by his instructor on the student lighter-than-air pilot certificate;

(2) He shall have had a minimum of six instruction flights in free balloons of not less than 1 hour duration each and shall have logged at least 1 hour of actual solo flight in a free balloon and such fact shall be certified to by his instructor on the student lighter-than-air pilot certificate. If the student pilot possesses a free balloon pilot certificate such certification shall not be required;

(3) He shall have had a minimum of 35 hours of dual instruction in airships which shall include level flight, right and left turns, landings and take-offs and shall be deemed competent by his instructor to make such flight, which fact shall be certified to by his instructor on the student lighter-than-air pilot certificate.

(*c*) The holder of a student lighter-than-air pilot certificate shall not pilot any lighter-than-air aircraft carrying any person other than a certificated commercial lighter-than-air pilot, a member of the crew, or another certificated student lighter-than-air pilot whose presence in the aircraft is authorized by the instructor under whose direction the flight is being made. Such person shall not pilot any lighter-than-air aircraft for hire.

22.311 Private lighter-than-air pilot.

(*a*) The holder of a private lighter-than-air pilot certificate shall not pilot an airship carrying any persons or property for hire nor give any flight or instrument instruction therein.

(*b*) The holder of such certificate may pilot a free balloon for hire and may give flight instruction therein.

22.312 Commercial lighter-than-air pilot. The holder of a commercial lighter-than-air pilot certificate may pilot for hire any lighter-than-air aircraft carrying passengers or property and may give either flying instruction or instrument instruction therein.

22.313 Free balloon pilot. The holder of a free balloon pilot certificate shall not pilot any lighter-than-air aircraft except a free balloon but may pilot a free balloon for hire carrying passengers or property and give flight instruction therein.

22.314 Periodic physical examination.

(*a*) A certificated lighter-than-air pilot shall not pilot an aircraft in flight unless within the 12-month period immediately preceding such flight he has met the appropriate physical requirements for the original issuance of his certificate by passing an examination conducted by an authorized medical examiner of the Administrator.

(*b*) In lieu of the physical examination conducted by an authorized medical examiner of the Administrator, a certificate from the appropriate officer in charge of flying in the Army, Navy, Marine Corps, or Coast Guard certifying that the applicant is on pilot status solo in such service

will be accepted as evidence of the physical fitness required for the issuance of any medical certificate provided for in this Part: *Provided*, That the physical qualifications required for such pilot status are not less than those required by these regulations for the grade of pilot certificate applied for.

22.32 Miscellaneous.

22.320 Display. The holder of any lighter-than-air pilot certificate shall keep his certificate in his personal possession at all times when piloting lighter-than-air aircraft and shall present the same for inspection upon request of any passenger, any authorized officer or employee of the Administrator or Board and of any State or municipal official charged with the duty of enforcing local laws or regulations involving Federal compliance.

22.3200 Medical certificate. A medical certificate issued by an authorized medical examiner of the Administrator or other evidence satisfactory to the Administrator that the pilot has met the appropriate physical requirements prescribed in this Part shall be carried by such pilot while piloting aircraft.

22.321 Surrender. The holder of a lighter-than-air pilot certificate shall surrender, upon request, such certificate to any officer or employee of the Administrator if it has been suspended or revoked or if it has expired.

22.322 Operation during physical deficiency. The holder of a lighter-than-air pilot certificate shall not pilot any lighter-than-air aircraft during the period of any known 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.

22.323 Inspection. An applicant for, or the holder of, a lighter-than-air pilot certificate shall offer full cooperation with respect to any inspection or examination which may be made of such person upon proper request by any authorized representative of the Administrator.

22.324 Simulated instrument flight. No person shall pilot a lighter-than-air aircraft in flight under simulated instrument conditions unless a certificated lighter-than-air safety pilot shall be present at all times and have ready access to the controls and adequate vision from the aircraft.

22.325 Log-books. Every certificated lighter-than-air pilot and every person receiving flight instruction shall keep an accurate record of his flying time in a log-book in which the entries with respect to solo flying time shall be certified to by him and such entries respecting dual instruction shall have been certified to by the lighter-than-air pilot giving the instruction. This log-book shall be presented for inspection upon request and reasonable notice to any authorized representative of the Administrator or Board or of any State or municipal officer enforcing local regulations or laws involving Federal compliance.

22.3250 Form. Such log-book shall be a bound record and the entires shall be accurate, legible and in ink or indelible pencil so arranged as to facilitate easy reference thereto.

22.3251 Content. The log-book shall contain entries including at least the following: The date of flight; the make and model of the lighter-than-air aircraft flown; the aircraft identification mark; a statement classifying the type of flight (whether solo, dual instruction, instrument or night flying time); the duration of the flight; 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.

22.3252 Logging of flight time. No flight time shall be logged as such unless the lighter-than-air aircraft flown is a public or certificated aircraft.

22.3253 Logging of instrument flight time. No instrument flight time shall be logged as such unless the lighter-than-air 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.

22.4 DEFINITIONS

22.40 Lighter-than-air aircraft. A lighter-than-air aircraft is an aircraft whose support is chiefly due to buoyancy derived from aerostatic forces.

22.400 Free balloon. A free balloon, as used in this Part, shall mean a lighter-than-air aircraft not restrained from free flight by any connection with the ground nor equipped with

any power plant or propelling device, the ascent and descent of which may be controlled by releasing ballast or gas and the direction of flight of which is determined by the wind.

22.401 Airship. An airship, as used in this Part, shall mean a lighter-than-air aircraft other than a fixed or free balloon.

22.41 Solo flight time. Solo flight time, as used in this Part, shall mean flight time when the pilot is in command and actually at the controls of the lighter-than-air aircraft regardless of the presence of any other crew members in the aircraft who may act under his direction.

22.410 Actual solo flight time. Actual solo flight time, as used in this Part, shall mean flight time when the pilot is the sole occupant of the lighter-than-air aircraft.

22.42 Dual instruction. Dual instruction, as used in this Part, shall mean flight time as a student at the controls of a lighter-than-air aircraft under the immediate direction of a pilot who is in command of the aircraft and authorized to give instruction therein.

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