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L.D.—B. 20/51.

THE AIR NAVIGATION ACT

REGULATION made by the Minister of Communications by virtue of the powers vested in him by section 24 of the Air Navigation Act (Chapter 365).

E. L. B. HURULLU,
Minister of Communications.

Colombo, 18. 6. 1969.

The Ceylon Air Navigation Regulations, 1955, published in the Supplement to Gazette No. 10,812 of July 1, 1955, as amended from time to time, are hereby further amended as follows:—

(1) in regulation 53 (1) by the substitution, for the words "Parts I and II of the First Schedule", of the words "the First Schedule."

(2) by the substitution, for regulation 279, of the following new regulation:

"279 (1) The standards for personnel licensing shall conform to the standards prescribed in Annex 1 to the Convention on International Civil Aviation in regard to the international standards and recommended practices for personnel licensing which annex is set out in the First Schedule hereto. The recommended practices prescribed in the aforesaid Annex 1 shall be implemented as far as possible. The fees chargeable for licensing shall be as prescribed in the Eighth Schedule hereto.

(2) Any amendments to the aforesaid Annex 1, adopted hereafter by the Council of the International Civil Aviation Organization shall be construed as having the same force under these regulations as prescribed under sub-paragraph (1) of this regulation."

(3) by the substitution for the First Schedule to the aforesaid regulations, of the Schedule hereto.

Schedule

FIRST SCHEDULE

INTERNATIONAL STANDARDS AND RECOMMENDED PRACTICES

PERSONNEL LICENSING

ANNEX 1 TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION

REPRODUCED AS FIRST SCHEDULE TO THE CEYLON AIR NAVIGATION REGULATIONS 1955

INTERNATIONAL STANDARDS AND RECOMMENDED PRACTICES

Chapter 1.—Definitions and General Rules Concerning Licences

1.1—Definitions

WHEN the following terms are used in the Standards and Recommended Practices for Personnel Licensing, they have the following meanings:

Aero-tow flight. Flights during which a glider is being towed by an aeroplane.

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each unconvent
weight.

Aero-tow flight time in a glider. The total time occupied in two by an aeroplane, from the moment the glider first moves for the purpose of taking off until the moment it is released from the tow device.

Aircraft-category. Classification of aircraft according to specified basic characteristics, e.g., aeroplane, glider, rotorcraft, free balloon.

Note.—Categories of aircraft are defined in Annex 7.

Aircraft-type of. All aircraft of the same basic design including all modifications thereto except those modifications which result in a change in handling or flight characteristics.

Approved training. Training carried out under special curricula and supervision approved by a Contracting State.

Competent Licensing Authority. The Authority designated by a Contracting State as responsible for the licensing of personnel.

Co-pilot. A licensed pilot serving in any piloting capacity other than as pilot-in-command but excluding a pilot who is on board the aircraft for the sole purpose of receiving flight instruction.

Dual instruction time. Flight time during which a person is receiving flight instruction from a pilot on board the aircraft.

Flight crew member. A licensed crew member charged with duties essential to the operation of an aircraft during flight time.

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

Note.—Flight time as here defined is synonymous with the term "block to block" time, or "chock to chock" time in general usage which is measured from the time the aircraft moves from the loading point until it stops at the unloading point.

Flight time in a glider. The total time occupied in flight whether being towed or not, from the moment the glider first moves for the purpose of taking off until the moment it comes to rest at the end of the flight.

Instrument flight time. Time during which a pilot is piloting an aircraft solely by reference to instruments and without external reference points.

Instrument ground time. Time during which a pilot is practising, on the ground, simulated instrument flight on a mechanical device approved by the Competent Licensing Authority.

Instrument time. Instrument flight time or instrument ground time.

Issuing a maintenance release. To certify that the inspection and maintenance work has been completed satisfactorily in accordance with the methods prescribed in the Maintenance Manual by signing the maintenance release referred to in 8.7 of Annex 6.

Night. The hours between the end of evening civil twilight and the beginning of morning civil twilight or such other period between sunset and sunrise as may be specified by the appropriate authority.

Pilot-in-command. The pilot responsible for the operation and safety of the aircraft during flight time.

Rating. An authorization entered on a licence and forming part thereof, stating special conditions, privileges or limitations pertaining to such licence.

Rendering (a licence) valid. The action taken by a Contracting State, as an alternative to issuing its own licence, in accepting a licence issued by any other Contracting State as the equivalent of its own licence.

(a) **Solo flight time.** Flight time during which a pilot is the sole occupant of an aircraft.

To certify as airworthy. To certify that an aircraft or parts thereof comply with current airworthiness requirements after being overhauled, repaired, modified or installed.

To pilot. To manipulate the flight controls of an aircraft during flight time.

1.2.—General rules concerning licences

Note.—International Standards and Recommended Practices are established for licensing the following personnel:

(a) Flight crew members:

- private pilot;
- commercial pilot;
- senior commercial pilot;
- airline transport pilot;
- glider pilot;
- free balloon pilot;
- private pilot—helicopter;
- commercial pilot—helicopter;
- airline transport pilot—helicopter;
- flight navigator;
- flight engineer (flight mechanic);
- flight radio operator.

(b) Other personnel:

- aircraft maintenance engineer (aircraft-maintenance mechanic) Type II;
- aircraft maintenance engineer (aircraft maintenance mechanic) Type I;
- aircraft radio engineer (aircraft radio mechanic);
- air traffic controller;
- flight operations officer;
- aeronautical station operator.

1.2.1.—AUTHORITY TO ACT AS A FLIGHT CREW MEMBER

A person shall not act as a flight crew member of an aircraft unless he holds a valid licence appropriate to his duties issued by the State of Registry of that aircraft or issued by any other Contracting State and rendered valid by the State of Registry of that aircraft.

1.2.2.—METHOD OF RENDERING A LICENCE VALID

When a Contracting State renders valid a licence issued by another Contracting State, as an alternative to the issuance of its own licence, it shall establish validity by suitable authorization to be carried with the former licence accepting it as the equivalent of the latter. The validity of the authorization shall not extend beyond the period of validity of the licence.

Note.—This provision is not extended to preclude the State that issued the licence from extending, by a suitable notification, the period of validity of the licence without necessarily requiring either the physical return of the licence or the appearance of the licence holder before the authorities of that State.

1.2.3.—PRIVILEGES OF THE HOLDERS OF LICENCE

A Contracting State shall not permit the holder of a licence to exercise privileges other than the privileges of the licence he holds.

1.2.4.—MEDICAL FITNESS

1.2.4.1. Contracting States shall designate examiners to conduct the medical examinations of applicants for the issue or renewal of the licences or ratings given in Chapters 2, 3 and 4. Such examiners shall be licensed in the practice of medicine.

1.2.4.1.1. **RECOMMENDATION.—**Examiners designated to conduct the medical examinations of applicants for the issue or renewal of licences or ratings for flight crew members of aircraft engaged in commercial operations should have knowledge of the practical conditions in which flight crew members have to carry out their duties.

1.2.4.2. Each applicant for the issue or renewal of a licence or rating given in Chapters 2, 3 and 4 for which medical fitness is prescribed shall undergo a medical examination for the assessment of his medical fitness by a designated medical examiner and shall furnish to the medical examiner a declaration signed by himself stating whether he has previously undergone such a medical examination and with what result.

1.2.4.2.1. Any declaration made by an applicant to a medical examiner that is found to have been false shall be reported to the Competent Licensing Authority of the Contracting State issuing the licence and to the Contracting State whose nationality the person concerned possesses, if that is different, for such action as may be considered appropriate.

1.2.4.3. Medical examinations shall be conducted and the assessment of medical fitness shall be made in accordance with Chapter 6. The medical examiner shall inform the Competent Licensing Authority of his conclusions in accordance with the requirements of that Authority.

1.2.4.4. The Contracting State shall withhold issue or renewal of a licence if the medical requirements prescribed for that licence are not attained, except that, the licence may be issued or renewed if the following conditions are met:

(1) Accredited medical conclusion indicates that:

- (a) the condition of the applicant is not such as to introduce any hazard either of sudden incapacity or of inability to perform his duties safely during the validity period of the licence; and
- (b) failure to attain the requirements is capable of being compensated.

(2) The Contracting State has satisfactory evidence that the applicant's already acquired and demonstrated ability skill and experience compensate for his deficiency.

(3) The licence is endorsed with any special limitations when the safe performance of flight duties is dependent on compliance with such limitations.

1.2.5.—VALIDITY OF LICENCES

Licences shall be renewed or shall remain valid subject to arrangements which enable a Contracting State to be satisfied that the holders thereof maintain competency and subject to the receipt of a satisfactory report of medical fitness in accordance with 1.2.5.1. in the cases there specified.

Note.—The experience of Contracting States shows that the maintenance of competency of pilots engaged in commercial air transportation may be satisfactorily ensured by requirements for appropriate recent experience and by demonstration of skill during proficiency flight checks completed in accordance with 4.2.7.2 of Annex 6; and that it can be satisfactorily recorded by the inclusion of certification showing the data relevant to such checks in either the operator's records, or the pilot's personal log book, or in the pilot's licence.

1.2.5.1. Except as provided in 1.2.5.1.1 a report of medical fitness obtained in accordance with 1.2.4.2 and 1.2.4.3 shall be submitted at intervals of not greater than:

- 24 months for the private pilot licence;
- 24 months for the glider pilot licence;
- 24 months for the private pilot—helicopter licence;
- 24 months for the free balloon pilot licence;
- 12 months for the commercial pilot licence;
- 12 months for the commercial pilot—helicopter licence;
- 6 months for the senior commercial pilot licence;
- 6 months for the airline transport pilot licence;
- 6 months for the airline transport pilot—helicopter licence;
- 12 months for the flight navigator licence;
- 12 months for the flight engineer (flight mechanic) licence;
- 12 months for the flight radio operator licence;
- 12 months for the air traffic controller licence with an aerodrome control or a radar rating entered thereon.

1.2.5.1.1. **RECOMMENDATION.—**Where the holder is forty years of age or over, the twenty-four months specified for the private pilot, glider pilot, private pilot—helicopter and the free balloon pilot licences should be reduced to twelve months, and the twelve months specified for the commercial pilot and commercial pilot—helicopter licences should be reduced to six months.

1.2.5.1.2. **Circumstances in which medical examination may be deferred.** If, because of duty in a region distant from official examination centres, deferment of the medical re-examination of a flight crew member has to be made, such deferment shall only be made as an exception and shall not exceed:

- (a) a single period of six months ^{of deferment} at a flight crew member of an aircraft engaged in operations; or

(b) two consecutive periods each of three months in the case of a flight crew member of an aircraft engaged in commercial operations, provided that the person concerned obtains locally, in each instance, a favourable medical certificate after examination by a qualified physician carrying out public medical functions in that region or experienced in examination of aviation personnel or, if such is not available, by a physician legally qualified to practise.

1.2.6. DECREASE IN MEDICAL FITNESS

1.2.6.1. Each Contracting State shall, as far as is practicable, ensure that a licence holder does not exercise the privileges of his licence during any period in which his medical fitness has, from any cause, decreased to an extent that would have prevented the issuance or renewal of his licence.

1.2.6.2. The holder of a licence shall not exercise the privileges of his licence during any period when such holder is aware of any decrease in medical fitness which might render him unable to meet the medical requirements for the issue or renewal of his licence.

Note.—Decrease of medical fitness includes the effects of diseases, injury, alcohol, drugs, and will apply if they render the holder incapable of meeting the requirements for the issue of his currently effective licence. It is assumed that States will take adequate measures to prevent decrease of medical fitness from such causes as lack of oxygen, toxic gases.

1.2.7. APPROVED TRAINING

Note.—Experience has shown that the necessary qualifications required for the issue of personnel licences, can be more readily and speedily acquired by applicants who undergo closely supervised, systematic and continuous courses of training, conforming to a planned syllabus or curriculum. Provision has accordingly been made for some reduction in the experience requirements for the issue of certain licences and ratings prescribed in these Standards and Recommended Practices, in respect of an applicant who has satisfactorily completed a course of approved training. A series of curricula for courses of training are published separately in the Training Manual (Doc 7192-AN/857).

Approved training established by a Contracting State shall provide a level of safety at least equal to that provided by the minimum experience requirements for personnel not receiving such approved training.

Chapter 2.—Licences and Ratings for Pilots

2.1.—Ratings for pilot licences and privileges relating thereto

2.1.1. Aircraft ratings shall comprise:

- (a) category rating;
- (b) class rating;
- (c) type rating

2.1.1.1. Category ratings shall comprise:

- (a) aeroplane;
- (b) rotorcraft (e.g. helicopter or gyroplane);
- (c) glider;
- (d) free balloon;

and shall be entered on a pilot licence unless already contained within the licence title itself.

Note.—The specifications for glider, free balloon, and rotorcraft (helicopter) category ratings are given in 2.7, 2.8, 2.9, 2.10, and 2.11 respectively. Requirements for pilots of rotorcraft (gyroplane) have not yet been specified.

2.1.1.2. Class ratings shall comprise:

- (a) For aeroplanes:
 - (i) single engine, land;
 - (ii) single engine, sea;
 - (iii) multi-engine, land;
 - (iv) multi-engine, sea.

(b) For rotorcraft:

- (i) single-rotor, helicopter;
- (ii) multi-rotor, helicopter;
- (iii) gyroplane.

2.1.1.3. Type ratings shall comprise:

- (a) a rating for each type of aircraft having a gross weight exceeding 5 700 kilogrammes;
- (b) a rating for each type of helicopter, irrespective of weight, operated for remuneration;
- (c) a rating for each unconventional type of aircraft regardless of gross weight.

2.1.2. CIRCUMSTANCES IN WHICH AIRCRAFT RATINGS ARE REQUIRED

2.1.2.1. A Contracting State, having issued a pilot's licence, shall not permit the holder thereof to act as pilot-in-command of an aircraft carrying passengers or operated for remuneration, unless such holder has received the proper authorization from such Contracting State.

2.1.2.2. A Contracting State, having issued a pilot's licence, shall not permit the holder thereof to act as co-pilot of an aircraft engaged in commercial air transportation and certificated to be operated by more than one pilot, unless such holder has received the proper authorization from such Contracting State.

2.1.2.3. Proper authorization shall comprise a category rating and, where applicable, a class rating entered on the holder's licence, provided that for aircraft of a gross weight exceeding 5 700 kilogrammes or for aircraft of an unconventional type, or for helicopters of any weight operated for remuneration, proper authorization shall also include:

—for acting as a pilot-in-command, a type rating also entered on the pilot's licence;

—for acting as a co-pilot, a type rating appropriate to his functions also entered on the pilot's licence, or the satisfactory completion of a course of approved training evidence of which shall be recorded in a manner acceptable to the State issuing the licence.

2.1.2.4. The category, class and type rating shall be appropriate to the aircraft in which the holder of the licence either acts as pilot-in-command or as co-pilot carrying passengers, or acts for remuneration as pilot-in-command or as co-pilot.

2.1.3.—DEMONSTRATION OF SKILL FOR AIRCRAFT RATINGS

2.1.3.1. When an applicant demonstrates his skill for the issue of a pilot's licence, the ratings appropriate to the category, class and type of aircraft used in the test, shall be entered on such licence.

2.1.3.2. When the holder of a pilot's licence seeks an additional aircraft rating, he shall demonstrate skill appropriate to the requirements of his licence and his piloting functions, in the category and class and, when required in 2.1.2.3, in the type of aircraft for which the rating is sought.

2.1.4.—CIRCUMSTANCES IN WHICH AN INSTRUMENT RATING IS REQUIRED

2.1.4.1. A Contracting State, having issued a pilot's licence shall not permit the holder thereof to act as pilot-in-command of an aircraft under instrument flight rules (IFR) unless such holder has received proper authorization from such Contracting State. Proper authorization shall comprise an instrument rating appropriate to the aircraft category entered on the holder's licence.

Note.—The instrument rating is included in the airline transport pilot licence and the provisions of 2.1.4.1 do not preclude the issue of a licence having the instrument rating as an integral part thereof.

2.1.5.—CIRCUMSTANCES IN WHICH A FLIGHT INSTRUCTOR RATING IS REQUIRED

A Contracting State, having issued a pilot's licence shall not permit the holder thereof to carry out the flight instruction required for the issuance of a private licence, unless such holder has received proper authorization from such Contracting State. Proper authorization shall comprise a flight instructor rating entered on the holder's licence.

2.2.—Student pilot

2.2.1. A student pilot shall meet requirements prescribed by the Contracting State concerned and in prescribing such requirements, Contracting States shall not grant privileges that would permit student pilots to constitute a hazard to air navigation.

2.2.2. A Contracting State shall not permit a student pilot to fly solo unless under the supervision of, or with the authority of, a licensed pilot holding a flight instructor rating issued or rendered valid by such Contracting State.

2.2.3. A student pilot shall not pilot an aircraft on an international flight unless by special or general arrangement between the Contracting States concerned.

2.2.4.—MEDICAL FITNESS

A student pilot shall establish his medical fitness on the basis of compliance with the following medical requirements:

Physical requirement	..	No. 3
Visual requirement	..	No. 3
Colour perception requirement	..	No. 1
Hearing requirement	..	No. 2

2.3.1.—REQUIREMENTS FOR THE ISSUE OF A LICENCE

A Contracting State shall require an applicant for a private pilot licence to meet the following requirements in respect of age, knowledge, experience, skill and medical fitness:

2.3.1.1. *Age.* He shall be not less than seventeen years of age.

2.3.1.2. *Knowledge.* He shall satisfy the Competent Licensing Authority as to his knowledge of:

- (a) the rules and regulations relevant to the operation of private aircraft, including air traffic services, practices and procedures;
- (b) the practical aspects of cross-country flight and where necessary flight in terminal areas, including:
 - the application of elementary air navigation;
 - the use of navigation instruments and aeronautical charts;
 - the use of meteorological information;
- (c) theory of flight and aircraft operating limitations and, in particular, the nature and possible consequences of the stall;
- (d) safety practices and in-flight emergency procedures.

2.3.1.3. *Experience.* He shall have completed not less than:

- (a) forty hours of flight time, dual and solo, or not less than thirty hours if he has satisfactorily completed a course of approved training, provided that:
 - if he requires a licence to fly aircraft of unconventional type, these requirements may be modified in accordance with the degree of skill and experience necessary in each case;
 - where he is the holder of a licence to fly gliders or helicopters, these requirements may be reduced in accordance with his degree of skill and experience
- (b) three hours of cross-country flight time, solo, including a round-trip flight to an aerodrome not less than fifty nautical miles distant from the point of departure and including not less than two full-stop landings at different points along the route. The three hours of cross-country flight may be included in the total of forty hours or thirty hours specified in 2.3.1.3. (a).

2.3.1.4. *Skill.* He shall demonstrate his familiarity with and his ability to perform both normal and emergency flight manoeuvres appropriate to the category and class of aircraft used in the test and with a degree of competency appropriate to that of a private pilot.

2.3.1.5. *Medical fitness.* He shall have established his medical fitness on the basis of compliance with the following requirements:

Physical requirement ..	No. 3
Visual requirement ..	No. 3
Colour perception requirement ..	No. 1
Hearing requirement ..	No. 2

2.3.1.5.1. In the case of an applicant for instrument rating the assessment of hearing acuity shall be made on the basis of compliance with:

Hearing requirement ..	No. 1
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2.3.2.—PRIVILEGES OF THE HOLDER OF A LICENCE AND THE CONDITIONS TO BE OBSERVED IN EXERCISING SUCH PRIVILEGES

Subject to compliance with the requirements specified in 1.2.5., 1.2.6., 2.1.2 and 2.1.4, the privileges of the holder of a private Pilot licence shall be to act, but not for remuneration:

- (a) as pilot of an aircraft not operated for remuneration, if he is the sole occupant thereof;
- (b) as pilot-in-command of any aircraft not operated for remuneration and to carry passengers therein, provided that he shall not carry passengers by night unless within the six months immediately preceding the flight during which passengers are to be carried, he has carried out not less than five takeoffs and five landings, by night;
- (c) as co-pilot in any aircraft not operated for remuneration.

2.4.—Commercial pilot

2.4.1.—REQUIREMENTS FOR THE ISSUE OF A LICENCE

A Contracting State shall require an applicant for a commercial pilot licence to meet the following requirements in respect of age, knowledge, experience, skill and medical fitness:

2.4.1.1. *Age.* He shall be not less than eighteen years of age)

2.4.1.2. *Knowledge.* He shall satisfy the Competent Licensing Authority as to his knowledge of:

- (a) the rules and regulations relevant to the operation of aircraft, including air traffic services practices and procedures;
- (b) the practical aspects of cross-country flight and, where necessary, flight in terminal areas, including:
 - practical air navigation, including radio navigation where applicable;
 - the use of navigation instruments and aeronautical charts;
 - elementary aeronautical meteorology, including interpretation of weather charts and meteorological reports;
- (c) theory of flight and aircraft operating limitations, with detailed consideration of the stall and including basic principles of loading and weight distribution, and their effect on flight characteristics;
- (d) safety practices and in-flight emergency procedures;
- (e) aircraft equipment and installations;
- (f) the general aspects of airframe and power-plant maintenance.

2.4.1.3. *Experience.* He shall have completed not less than 200 hours of flight time or 150 hours of flight time if he has satisfactorily completed a course of approved training. The total of 200 hours or 150 hours, as the case may be, shall include:

- (a) 100 hours as pilot-in-command;
- (b) twenty hours of cross-country flight time as pilot-in-command including one flight of not less than 300 nautical miles in the course of which not less than two full-stop landings at different points shall be made;
- (c) ten hours of instrument time, of which not more than five hours may be instrument ground time; and
- (d) if flight by night privileges are required, five hours of flight by night including not less than ten take-offs and ten landings by night as pilot-in-command and as sole manipulator of the controls.

Note.—The night flying experience specified in 2.4.1.3 (b) and the instrument time specified in 2.4.1.3 (c) do not entitle the holder of a commercial pilot licence to pilot aircraft under IFR.

2.4.1.4. *Skill.* He shall demonstrate his ability to perform both normal and emergency flight manoeuvres appropriate to the category and class of aircraft used in the test and with degree of competency appropriate to that of a commercial pilot.

2.4.1.5. *Medical fitness.* He shall have established his medical fitness on the basis of compliance with the following medical requirements:

Physical requirement ..	No. 1
Visual requirement ..	No. 1
Colour perception requirement ..	No. 1
Hearing requirement ..	No. 1

2.4.2.—PRIVILEGES OF THE HOLDER OF A LICENCE AND THE CONDITIONS TO BE OBSERVED IN EXERCISING SUCH PRIVILEGES

Subject to compliance with the requirements specified in 1.2.5., 1.2.6., 2.1.2 and 2.1.4, the privileges of the holder of a commercial pilot licence shall be:

- (a) to exercise all the privileges of a private pilot;
- (b) to act as pilot-in-command in any aircraft engaged in operations other than commercial air transportation;
- (c) to act as pilot-in-command in commercial air transportation in any aircraft having a gross weight not exceeding 5 700 kilogrammes. He shall not exercise this privilege by night unless he has complied with the requirements specified in 2.4.1.3 (d), and unless within the six months immediately preceding such flight by night he has carried out not less than ten take-offs and ten landings, by night;
- (d) to act as co-pilot in commercial air transportation aircraft required to be operated with a co-pilot, provided that for flights under IFR, he holds an instrument rating.

2.5.—Senior commercial pilot

2.5.1.—REQUIREMENTS FOR THE ISSUE OF A LICENCE

A Contracting State shall require an applicant for a senior commercial pilot licence to meet the following requirements in respect of age, knowledge, experience, skill and medical fitness:

2.5.1.1. *Age.* He shall be not less than twenty-one years of age.

2.5.1.2. Knowledge. He shall satisfy the Competent Licensing Authority as to his knowledge of:

- (a) the rules and regulations relevant to the operation of aircraft, including air traffic services practices and procedures;
- (b) the basic principles of air navigation, including the use of formulae, instruments, and other navigational aids necessary for the navigation of aircraft by instruments;
- (c) the general system of collection of meteorological data and its dissemination;
- (d) weather map, weather forecast, and weather abbreviations, symbols, and nomenclature;
- (e) aeronautical meteorology including:
 - a knowledge of pressure systems based on modern conceptions;
 - the association of pressure systems with fronts cloud forms and icing conditions;
 - the movement of upper winds and its effect on aircraft operation;
- (f) weather service circulars and instructions for air route meteorological service which are pertinent to aircraft operation;
- (g) radio communication procedures as applied to aircraft operation;
- (h) theory of flight and aircraft operating limitations, with detailed consideration of the stall and including the basic principles of loading and weight distribution and their effect on flight characteristics;
- (i) aircraft equipment and installations;
- (j) the general aspects of airframe and power-plant maintenance.

2.5.1.3. Experience. He shall:

- (a) have completed not less than 700 hours of total flight time. Of this time, not less than 150 hours shall have been completed as pilot-in-command and additional flight time to make a total of not less than 200 hours shall have been completed either as pilot-in-command or as co-pilot performing under the supervision of a pilot-in-command, the duties and functions of a pilot-in-command, providing the method of supervision employed is satisfactory to the Contracting State; flight time thus acquired as a co-pilot performing under supervision shall be credited in accordance with 2.15.4;
- (i) the total 200 hours specified shall include twenty-five hours of flight by night, ten hours of which shall be cross-country flight by night, and shall also include ten take-offs and landings;
- (ii) or, in lieu of the ten hours' cross-country flight by night specified in (i), ten hours of cross-country instrument flight time which shall be additional to the instrument time specified in 2.5.1.3(b);
- (b) have completed not less than twenty hours of instrument time, of which not more than ten hours shall be instrument ground time.

Note.—The night flying experience specified in 2.5.1.3 (a) and the instrument time specified in 2.5.1.3 (a) and (b) do not entitle the holder of a senior commercial pilot licence to pilot aircraft under IFR.

2.5.1.4. Skill. He shall demonstrate his ability:

- (a) to pilot aircraft satisfactorily in all manoeuvres used in normal flight;
- (b) to execute emergency manoeuvres which may include simulated forced landings and recovery from stalls entered both from level and steeply banked attitudes;
- (c) to operate multi-engine aircraft at authorized maximum landing weight with one engine inoperative, if a rating on such aircraft is sought;
- (d) to execute all normal manoeuvres solely by reference to instruments;
- (e) to execute any other manoeuvres which may be essential to establish his competency;
- (f) to carry out the tests specified in (b) and (c) in an aircraft of the class for which a rating is sought, and where the rating is sought for an aircraft having a gross weight exceeding 5,700 kilograms in the type of aircraft for which the rating is sought;

provided that any manoeuvre required during the course of the tests specified in (a) to (f) may be modified or eliminated if such manoeuvre is inadvisable in the type of aircraft used in the tests.

2.5.1.5. Medical Fitness. He shall have established his medical fitness on the basis of compliance with the following medical requirements:

Physical requirements	.. No. 1
Visual requirements	.. No. 1
Colour perception	.. No. 1
Hearing requirements	.. No. 1

2.5.2.—PRIVILEGES OF THE HOLDER OF A LICENCE AND THE CONDITIONS TO BE OBSERVED IN EXERCISING SUCH PRIVILEGES

Subject to compliance with the requirements specified in 1.2.5, 1.2.6, 2.1.2 and 2.1.4, the privileges of the holder of a senior commercial pilot licence shall be:

- (a) to exercise all the privileges of a private and commercial pilot;
- (b) to act as pilot-in command in commercial air transportation in any aircraft having a gross weight not exceeding 20,000 kilograms;
- (c) to act as co-pilot in commercial air transportation in aircraft required to be operated with a co-pilot, provided that for flights under IFR he holds an instrument rating.

2.6.—Airline transport pilot

2.6.1.—REQUIREMENTS FOR THE ISSUE OF A LICENCE

A Contracting State shall require an applicant for an airline transport pilot licence to meet the following requirements in respect of age, knowledge, experience, skill and medical fitness:

- 2.6.1.1. Age.
 - 2.6.1.1.1. He shall be not less than twenty-one years of age.
 - 2.6.1.1.2. RECOMMENDATION.—

The holder of an airline transport pilot licence acting as pilot-in-command in aircraft engaged in international commercial air transportation should not be more than sixty years of age.

2.6.1.2. Knowledge. He shall satisfy the Competent Licensing Authority as to his knowledge of:

- (a) the rules and regulations relevant to the operation of aircraft, including air traffic services practices and procedures;
- (b) the basic principles of air navigation, including the use of formulae, instruments, and other aids necessary for the navigation of aircraft by instruments;
- (c) the general system of collection of meteorological data and its dissemination;
- (d) whether map, weather forecast, and weather abbreviations, symbols, and nomenclature;
- (e) aeronautical meteorology including:
 - a knowledge of pressure systems based on modern conceptions;
 - the association of pressure systems with fronts, cloud forms and icing conditions;
 - the movement of upper winds and its effect on aircraft operation;
- (f) weather service circulars and instructions for air route meteorological service which are pertinent to aircraft operation;
- (g) radio communication procedures as applied to aircraft operation;
- (h) theory of flight and aircraft operating limitations, with detailed consideration of the stall and including the basic principles of loading and weight distribution, and their effect on flight characteristics;
- (i) aircraft equipment and installations;
- (j) the general aspects of airframe and power-plant maintenance;

and any other knowledge required for the instrument rating.

2.6.1.3. Experience. He shall have completed not less than 1,200 hours of flight time credited as in 2.15. This total shall include not less than:

- (a) 100 hours of night flight as pilot-in-command or as co-pilot;
- (b) 250 hours either as pilot-in-command, or made up by not less than 150 hours as pilot-in-command and the additional flight time necessary as co-pilot performing under the supervision of a pilot-in-command, the duties and functions of a pilot-in-command, providing the method of supervision employed is satisfactory to the Contracting State; flight time thus acquired as a co-pilot performing under supervision shall be credited in accordance with 2.15.4. These 250 hours shall include 100 hours of cross-country flight time of which not less than twenty-five hours shall have been by night;
- (c) 200 hours of cross-country flight time as co-pilot in an aircraft required to be operated with a co-pilot credited in accordance with 2.15, in lieu thereof 100 additional hours of cross-country flight time as pilot-in-command which may have been part of the 250 hours specified in (b);
- (d) seventy-five hours of instrument time of which not more than twenty-five hours shall be instrument ground time.

- (b) to execute emergency manoeuvres which may include simulated forced landings and recovery from stalls entered from both level and steeply banked attitudes;
- (c) to operate multi-engine aircraft at authorized maximum landing weight with one engine inoperative, if a rating on such aircraft is sought;
- (d) to execute all normal manoeuvres solely by reference to instruments;
- (e) to operate multi-engine aircraft solely by reference to instruments, at authorized maximum landing weight with one engine inoperative, if a rating on such aircraft is sought;
- (f) to interpret International Morse Code radio signals and while piloting aircraft under actual or simulated instrument flight conditions, the carrying out of orientation and approach procedures by the use of radio, and to give any other demonstration of skill required for the instrument rating;
- (g) to execute any other manoeuvres which may be essential to establish competency;
- (h) to carry out the tests specified in (b), (c) and (e) in an aircraft of the class for which a rating is sought, and where the rating is sought for an aircraft having a gross weight exceeding 5,700 kilogrammes in the type of aircraft for which the rating is sought;

provided that any manoeuvre required during the course of the tests specified in (a) to (h) may be modified or eliminated if such manoeuvre is inadvisable in the type of aircraft used in the tests.

2.6.1.5. *Medical fitness.* He shall have established his medical fitness on the basis of compliance with the following medical requirements:

Physical requirement	..	No. 1
Visual requirement	..	No. 1
Colour perception requirement	..	No. 1
Hearing requirement	..	No. 1

2.6.2.—PRIVILEGES OF THE HOLDER OF A LICENCE AND THE CONDITIONS TO BE OBSERVED IN EXERCISING SUCH PRIVILEGES

Subject to compliance with the requirements specified in 1.2.5, 1.2.6 and 2.1.2, the privileges of the holder of an airlines transport pilot licence shall be:

- (a) to exercise all the privileges of a private and commercial pilot and of the holder of an instrument rating;
- (b) to act as pilot-in-command and as co-pilot in air transportation.

2.7.—Glider pilot

2.7.1.—REQUIREMENTS FOR THE ISSUE OF A LICENCE

A Contracting State shall require an applicant for a glider pilot licence to meet the following requirements in respect of age, knowledge, experience, skill and medical fitness:

2.7.1.1. *Age.* He shall be not less than sixteen years of age.

2.7.1.2. *Knowledge.* He shall satisfy the Component Licensing Authority as to his knowledge of:

- (a) the rules and regulations relating to the operation of gliders including pertinent air traffic services practices and procedures;
- (b) the elementary principles of:
 - aeronautical charts;
 - meteorology in relation to flights in gliders;
 - the compass and other instruments used in gliders;
 - theory of flight and glider operating limitations and, in particular, the nature and possible consequences of the stall.

2.7.1.3. *Experience.* He shall have completed not less than three hours of flight time in a glider suitable for cross-country flights. The total of three hours shall include two hours' solo flight time, during which he shall have performed not less than twenty take-offs and landings, provided that, where he is the holder of a licence to fly aeroplanes, these requirements may be reduced in accordance with his degree of skill and experience.

2.7.1.4. *Skill.* He shall demonstrate his familiarity with and his ability to perform both normal and emergency flight manoeuvres appropriate to a glider suitable for cross country flights and with a degree of competency appropriate to that of a glider pilot.

2.1.1.5. *Medical fitness.* He shall have established medical fitness on the basis of compliance with the following medical requirements:

Physical requirement	..	No. 3
Visual requirement	..	No. 3
Colour perception requirement	..	No. 1
Hearing requirement	..	No. 2

2.7.2.—PRIVILEGES OF THE HOLDER OF A LICENCE AND THE CONDITIONS TO BE OBSERVED IN EXERCISING SUCH PRIVILEGES

Subject to compliance with the requirements specified in 1.2.5, 1.2.6 and 2.1.2, the privileges of the holder of a glider pilot licence shall be to act:

- (a) as pilot of any glider, if he is the sole occupant thereof;
- (b) as pilot-in-command of any glider and to carry passengers therein, provided that before carrying passengers in aero-tow flights, he shall have carried out not less than six aero-tow flights of a total duration of not less than one hour, as the sole occupant of a glider.

2.8.—Free balloon pilot

2.8.1.—REQUIREMENTS FOR THE ISSUE OF A LICENCE

A Contracting State shall require an applicant for a free balloon pilot licence to meet the following requirements in respect of age, knowledge, experience, skill and medical fitness:

2.8.1.1. *Age.* He shall be not less than seventeen years of age.

2.8.1.2. *Knowledge.* He shall satisfy the Competent Licensing Authority as to his knowledge of:

- (a) the rules and regulations relating to the operation of free balloons including pertinent air traffic services practices and procedures;
- (b) aerostatics and of meteorology in relation to ballooning;
- (c) a balloon and its accessories, inflation, rigging, management of an ascent, precautions against cold and high altitudes, as well as patching a ripping seam;
- (d) the elementary principles of:
 - aeronautical charts;
 - instruments used in balloons.

2.8.1.3. *Experience.* He shall have completed not less than eight ascents of an average duration of two hours. This total shall include:

- (a) six ascents under instruction;
- (b) one ascent in control, under supervision of a licensed free balloon pilot, to an altitude of not less than 3,000 metres;
- (c) one ascent as the sole occupant of the balloon.

2.8.1.4. *Skill.* He shall demonstrate his familiarity with and his ability to perform both normal ascents and manoeuvres under difficult circumstances appropriate to the balloon used in the test and with a degree of competency appropriate to that of a free balloon pilot.

2.8.1.5. *Medical fitness.* He shall have established his medical fitness on the basis of compliance with the following medical requirements:

Physical requirement	..	No. 3
Visual requirement	..	No. 3
Colour perception requirement	..	No. 1
Hearing requirement	..	No. 2

2.8.2.—PRIVILEGES OF THE HOLDER OF A LICENCE AND THE CONDITIONS TO BE OBSERVED IN EXERCISING SUCH PRIVILEGES

Subject to compliance with the requirements specified in 1.2.5 and 1.2.6, the privileges of the holder of a free balloon pilot licence shall be to act as pilot-in-command in any free balloon, provided that, before exercising this privilege by night he shall have carried out two ascents by night of an average duration of two hours each under supervision of a free balloon pilot rated for that purpose.

2.9.—Private pilot—Helicopter

2.9.1.—REQUIREMENTS FOR THE ISSUE OF A LICENCE

A Contracting State shall require an applicant for a private pilot—helicopter licence to meet the following requirements in respect of age, knowledge, experience, skill and medical fitness:

2.9.1.1. *Age.* He shall be not less than seventeen years of age.

2.9.1.2. *Knowledge.* He shall satisfy the Competent Licensing Authority as to his knowledge of:

- (a) the rules and regulations relevant to the operation of private aircraft, including air traffic services practices and procedures;

(b) the practical aspects of cross-country flight and when necessary flight in terminal areas, including:

- the application of elementary air navigation;
- the use of navigation instruments and aeronautical charts;
- the use of meteorological information;

(c) theory of flight and helicopter operating limitations and in particular, the nature and possible consequences of the stalls

(d) safety practices and in-flight emergency procedures.

2.9.1.3. *Experience.* He shall have completed in helicopters not less than:

- (a) forty hours of flight time, dual and solo, or not less than thirty hours if he has satisfactorily completed a course of approved training;
- (b) ten hours' flight time, solo, not less than three hours of which shall be cross-country flight time including a flight to a landing ground not less than twenty-five nautical miles distant from the point of departure and including a landing at that landing ground. The ten hours of solo flight time may be included in the total of forty hours or thirty hours specified in 2.9.1.3.a);

provided that the requirement to complete the experience specified in (a) and (b) above in helicopters may be reduced in accordance with the degree of skill and experience of the holder of a licence to fly aeroplanes.

2.9.1.4. *Skill.* He shall demonstrate his ability to perform both normal and emergency manoeuvres appropriate to the type of helicopter used in the test and with a degree of competency appropriate to that of a private pilot—helicopter.

2.9.1.5. *Medical fitness.* He shall have established his medical fitness on the basis of compliance with the following medical requirements:

Physical requirement ..	No. 3
Visual requirement ..	No. 3
Colour perception requirement ..	No. 1
Hearing requirement ..	No. 2

2.9.2.—PRIVILEGES OF THE HOLDER OF A LICENCE AND THE CONDITIONS TO BE OBSERVED IN EXERCISING SUCH PRIVILEGES

Subject to compliance with the requirements specified in 1.2.5., 1.2.6., 2.1.2. and 2.1.4. the privileges of the holder of a private pilot—helicopter licence shall be to act, but not for remuneration:

- (a) as pilot of any helicopter not operated for remuneration, if he is the sole occupant thereof;
- (b) as pilot-in-command of any helicopter not operated for remuneration and to carry passengers therein. He shall not exercise this privilege by night unless he holds an instrument rating appropriate to helicopters or within the ninety days immediately preceding the flight during which passengers are to be carried, he has carried out not less than five take-off and five landing patterns, by night;
- (c) as co-pilot in any helicopter not operated for remuneration.

2.10.—Commercial pilot—Helicopter

2.10.1.—REQUIREMENTS FOR THE ISSUE OF A LICENCE

A Contracting State shall require an applicant for a commercial pilot—helicopter licence to meet the following requirements in respect of age, knowledge, experience, skill and medical fitness:

- 2.10.1.1. *Age.* He shall be not less than eighteen years of age.
- 2.10.1.2. *Knowledge.* He should satisfy the Competent Licensing Authority as to his knowledge of:
 - (a) the rules and regulations relevant to the operation of aircraft, including air traffic services practices and procedures;
 - (b) the practical aspects of cross-country flight and, where necessary, flight in terminal areas, including:
 - practical air navigation, including radio navigation where applicable;
 - the use of navigation instruments and aeronautical charts;
 - elementary aeronautical meteorology, including interpretation of weather charts and meteorological reports;
 - (c) theory of flight and helicopter operating limitations, with detailed consideration of the stall and including basic principles of loading and weight distribution, and their effect on flight characteristics;
 - (d) safety practices and in-flight emergency procedures;
 - (e) helicopter equipment and installations;
 - (f) the general aspects of helicopter airframes and power-plant maintenance.

2.10.1.3. *Experience.* He shall have completed in a helicopter not less than 100 hours of flight time or seventy-five hours of flight time if he has satisfactorily completed a course of approved helicopter training. The total of 100 hours or seventy-five hours as the case may be shall include:

- (a) thirty-five hours' flight time as pilot-in-command of a helicopter;
- (b) ten hours of cross-country flight time as pilot-in-command of a helicopter;
- (c) ten hours' flight time as pilot-in-command of a helicopter within the six months immediately preceding the date of application for the licence;

provided that the requirement to complete the experience specified in (a), (b) and (c) above in helicopters may be reduced in accordance with the degree of skill and experience of the holder of a licence to fly aeroplanes.

2.10.1.4. *Skill.* He shall demonstrate his ability to perform both normal and emergency manoeuvres appropriate to the type of helicopter used in the test and with a degree of competency appropriate to that of a commercial pilot—helicopter.

2.10.1.5. *Medical fitness.* He shall have established his medical fitness on the basis of compliance with the following medical requirements:

Physical requirement ..	No. 1
Visual requirement ..	No. 1
Colour perception requirement ..	No. 1
Hearing requirement ..	No. 1

2.10.2.—PRIVILEGES OF THE HOLDER OF A LICENCE AND THE CONDITIONS TO BE OBSERVED IN EXERCISING SUCH PRIVILEGES

Subject to compliance with the requirements specified in 1.2.5., 1.2.6., 2.1.2. and 2.1.4., the privileges of the holder of a commercial pilot—helicopter licence shall be:

- (a) to exercise all the privileges of a private pilot—helicopter;
- (b) to act as pilot-in-command of any helicopter engaged in any operations other than the commercial air transportation of passengers;
- (c) to act as pilot-in-command of any helicopter having a gross weight not exceeding 5 700 kilogrammes engaged in commercial air transportation of passengers, provided that he shall not carry passengers by night unless he holds an instrument rating appropriate to helicopters or within the ninety days immediately preceding the flight during which passengers are to be carried, he has carried out not less than five take-off and five landing patterns, by night;
- (d) to act as co-pilot in helicopters required to be operated with a co-pilot, provided that for flights under IFR he holds an instrument rating appropriate to helicopters.

2.11.—Airline transport pilot—Helicopter

2.11.1.—REQUIREMENTS FOR THE ISSUE OF A LICENCE

A Contracting State shall require an applicant for an airline transport pilot—helicopter licence to meet the following requirements in respect of age, knowledge, experience, skill and medical fitness:

- 2.11.1.1. *Age.*
 - 2.11.1.1.1. He shall be not less than twenty-one years of age.
 - 2.11.1.1.2. *RECOMMENDATION.—*

The holder of an airline transport pilot—helicopter licence acting as pilot-in-command in helicopters engaged in international commercial air transportation should not be more than sixty years of age.
- 2.11.1.2. *Knowledge.* He shall satisfy the Competent Licensing Authority as to his knowledge of:
 - (a) the rules and regulations relevant to the operation of aircraft, including air traffic services practices and procedures;
 - (b) the principles of air navigation applicable to helicopters, including the use of formulae, instruments, and other aids necessary for the navigation of helicopters including, where necessary, radio aids;
 - (c) meteorological elements and phenomena with particular reference to their effects in the lower levels of the atmosphere, and including:
 - the general system of collection of meteorological data and its dissemination;
 - weather charts;
 - weather forecasts;
 - abbreviations, symbols, and nomenclature used in aeronautical meteorology;
 - (d) procedures for the operation of helicopters in difficult meteorological conditions;

- (e) radio communication procedures as applied to helicopter operations;
- (f) safety practices and in-flight emergency procedures;
- (g) theory of flight and helicopter operating limitations, with detailed consideration of the stall and including the basic principles of loading and weight distribution and their effect on flight characteristics;
- (h) helicopter equipment and installations;
- (i) the general aspects of helicopter airframe and powerplant maintenance.

2.11.1.3. *Experience.* The Contracting State shall determine the experience required.

2.11.1.3.1. RECOMMENDATION.—

He should have completed not less than 200 hours as pilot-in-command in helicopters and, in addition, and less than 1,000 hours of flight time, credited as in 2.15, provided that the 1,000 hours of flight time may be reduced if he has acquired his flight experience principally in helicopters and has achieved, as determined by the Competent Licensing Authority, an equivalent level of experience.

2.11.1.4. *Skill.* He shall demonstrate his ability:

- (a) to pilot helicopters satisfactorily in all normal manoeuvres on the ground, in hover and in flight including water-borne or altitude manoeuvres, where applicable;
- (b) to execute emergency manoeuvres applicable to the type including forced landings in autorotation;

provided that any manoeuvre required during the course of the test specified in (a) and (b) may be modified or eliminated if such manoeuvre is inadvisable in the type of helicopter used in the tests.

2.11.1.5. *Medical fitness.* He shall have established his medical fitness on the basis of compliance with the following medical requirements:

Physical requirement	..	No. 1
Visual requirement	..	No. 1
Colour perception requirement	..	No. 1
Hearing requirement	..	No. 1

2.11.2.—PRIVILEGES OF THE HOLDER OF A LICENCE AND THE CONDITIONS TO BE OBSERVED IN EXERCISING SUCH PRIVILEGES

Subject to compliance with the requirements specified in 1.2.5, 1.2.6 and 2.1.2, the privileges of the holder of an airline transport pilot—helicopter licence shall be:

- (a) to exercise all the privileges of a private pilot—helicopter and of a commercial pilot—helicopter;
- (b) to act as pilot-in-command of any helicopter engaged in any operation, provided that for flights under IFR he holds an instrument rating appropriate to helicopters.

2.12.—Instrument rating—Aeroplanes

2.12.1.—REQUIREMENTS FOR THE ISSUE OF THE RATING

A Contracting State shall require an applicant for an instrument rating—aeroplanes to meet the following requirements in respect of knowledge, experience and skill:

2.12.1.1. *Knowledge.* He shall satisfy the Competent Licensing Authority as to his knowledge of:

- (a) practical air navigation including the use of aeronautical charts, navigation by dead-reckoning and by radio and the use and adjustment of flight instruments;
- (b) radio systems provided to aid navigation, including instrument approach to land systems, the manner in which such systems are used in flight under IFR, the procedure associated therewith and the assessment of reliability under operational conditions of the indications obtained from such radio aids;
- (c) aeronautical meteorology; elementary principles of forecasting, and the arrangements and procedures for the issue of aviation meteorological reports;
- (d) IFR and flight planning in relation to air traffic control services, aeroplane performance and forecasted meteorological conditions including the estimation of time of arrival at points along a route, the fuel quantities required for flight and the anticipation of flight plan modification which may prove necessary owing to changes in flight conditions.

2.12.1.2. *Experience.* He shall:

- (a) be a pilot licensed to fly aeroplanes;
- (b) have completed not less than 150 hours of flight time as pilot-in-command including not less than fifty hours of cross-country flight time by day;

(c) have completed not less than forty hours of instrument time of which not more than twenty hours shall be instrument ground time, or, if the applicant has satisfactorily completed a course of approved training thirty hours of instrument time of which not more than ten hours shall be instrument ground time.

2.12.1.3. *Skill.* He shall demonstrate in flight and solely by reference to instruments, his ability:

- (a) to perform such manoeuvres as are necessary to demonstrate his competency in the operation of aeroplanes;
- (b) to solve problems of dead-reckoning navigation, to fix his position and while piloting aeroplanes under actual or simulated instrument flight conditions to carry out orientation, let-down and approach procedures by the use of radio at a given aerodrome including the communications procedures required in the circumstances;
- (c) to interpret International Morse Code radio signals;
- (d) to fly multi-engine aeroplanes solely by reference to instruments, at authorized maximum landing weight with one engine inoperative, if a rating on such aircraft is sought;

provided that any manoeuvre required during the course of the tests specified in (a) to (d) may be modified or eliminated if such manoeuvre is inadvisable in the type of aeroplane used in the tests.

Note.—Standards for ensuring that holders of the instrument rating maintain their competency, other than the general provision for maintenance of competency specified in 1.2.5, have not yet been adopted.

2.12.2.—PRIVILEGES OF THE HOLDER OF A RATING

The privileges of the holder of an instrument rating—aeroplane shall be to pilot aeroplanes under IFR.

2.13.—Instrument rating—Helicopters

2.13.1.—REQUIREMENTS FOR THE ISSUE OF THE RATING

A Contracting State shall require an applicant for an instrument rating—helicopters to meet requirements specified by it for knowledge, experience and skill.

2.13.2.—PRIVILEGES OF THE HOLDER OF A RATING

The privileges of the holder of an instrument rating—helicopters shall be to pilot helicopters under IFR.

2.13.3.—EXERCISE OF JOINT PRIVILEGES OF INSTRUMENT RATING—AEROPLANES AND INSTRUMENT RATING—HELICOPTERS

The privileges given in 2.12.2 and 2.13.2 may be conferred by a single instrument rating in lieu of issuing separate instrument ratings for aeroplanes and helicopters provided that the requirements for the issue of both ratings, as specified in 2.12 and 2.13, have been met.

2.14.—Flight instructor rating

2.14.1.—REQUIREMENTS

A Contracting State shall provide for the grant of a flight instructor rating. In prescribing the minimum requirements for this rating, a Contracting State shall take into account the necessity for a high standard of instruction and the responsibility of flight instructors to ensure that student pilots under their supervision shall not constitute a hazard to air navigation.

2.14.2.—PRIVILEGES OF THE HOLDER OF A RATING

The privileges of the holder of a flight instructor rating shall be:

- (a) to supervise solo flights by student pilots;
- (b) to carry out the flight instruction required for the issuance of a private licence;
- (c) to exercise such other privileges, relating to flight instruction as may be granted by the Contracting State.

2.15.—Crediting of flight time

2.15.1. The holder of a private licence shall be entitled to be credited with the total flight time during which he acts as pilot-in-command and is the sole manipulator of the controls, towards the total flight time required for a higher grade of pilot licence provided that, if he is the holder of a flight instructor rating, he shall be entitled to be credited with the total flight time during which he is giving flight instruction.

2.15.2. The holder of a private licence when acting as co-pilot in an aircraft normally required to be operated with a co-pilot, shall be entitled to be credited with not more than fifty per cent of the co-pilot flight time toward the total flight time required for a commercial licence. Flight time so credited shall not exceed fifty hours.

2.15.3. The holder of a commercial licence or the holder of a senior commercial pilot licence shall be entitled to be credited with the total flight time whilst acting as pilot-in-command, toward the total flight time required for a higher grade of pilot licence.

2.15.4. The holder of a commercial licence or the holder of a senior commercial pilot licence whilst acting as co-pilot in aircraft normally required to be operated with a co-pilot, shall be entitled to be credited with not more than fifty per cent of the co-pilot flight time toward the total flight time required for a higher grade of pilot licence.

2.15.5. The holder of an airline transport licence shall be entitled to be credited with the total flight time whilst acting as pilot-in-command or as co-pilot provided that he has received the proper authorization specified in 2.1.2.

2.15.6. A pilot actually manipulating the flight controls of an aircraft under actual or simulated instrument flight conditions solely by reference to instruments and without external reference points, shall be entitled to be credited with the instrument flight time thus acquired toward the total flight time required for a higher grade of pilot licence.

2.15.7. In addition to the flight time credited in accordance with 2.15.1 and 2.15.3 dual instruction time shall be counted in full toward the total flight time required for a higher grade of pilot licence or for an instrument rating if the dual instruction time may be credited as instrument flight time.

Chapter 3.—Licences for Flight Crew Members other than Licences for Pilots

3.1.—Flight navigator

3.1.1.—REQUIREMENTS FOR THE ISSUE OF A LICENCE

A Contracting State shall require an applicant for a flight navigator licence to meet the following requirements in respect of age, knowledge, experience, skill and medical fitness:

3.1.1.1. Age. He shall be not less than twenty-one years of age.

3.1.1.2. Knowledge. He shall satisfy the Competent Licensing Authority as to his knowledge of:

- (a) the rules and regulations governing civil aviation which are pertinent to the navigation of aircraft;
- (b) the form of the earth and the celestial sphere, including:
 - definitions, units and formulae used in air navigation;
 - the practical properties and use of aeronautical charts;
 - the movement of heavenly bodies and their selection and identification for the purpose of observation and reduction of sights;
- (c) flight navigation, including:
 - air navigation facilities and procedures in current use;
 - pre-flight planning and en-route flight planning;
 - the keeping of navigation logs;
 - navigation by dead-reckoning;
 - navigation by the use of aeronautical charts;
 - navigation by radio; and
 - navigation by celestial observations;
- (d) the calibration and use of instruments and aircraft equipment used in flight navigation, including:
 - their principles of operation;
 - the errors to which they are subject and, where applicable, the methods of correction;

the examination in this subject shall include practical tests in the use and adjustment of navigation equipment and the interpretation of radio aid identification signals;

- (e) the meteorological elements and their general distribution and seasonal variations:
 - meteorological phenomena of concern to air navigation;
 - meteorological observations and the system of issue of meteorological reports for aviation;
 - the construction and analysis of synoptic charts;
 - the weather associated with pressure systems and fronts, and the principles of forecasting.

3.1.1.3. Experience.

3.1.1.3.1. He shall have completed not less than 200 hours of air navigation experience in aircraft engaged in cross-country

flights including not less than fifty hours of cross-country flight by night, provided that:

- (a) where he has had experience as pilot engaged in air transportation, 50 per cent of the flight time so acquired may be credited toward one-half of the 200 hours required above but shall not be credited toward the fifty hours of cross-country flight by night;
- (b) where he is the holder of a certificate of competency, as Master or Mate of an ocean-going vessel, he shall have completed not less than 100 hours, air navigation experience, including not less than fifty hours of cross-country flight by night.

3.1.1.3.2. He shall produce evidence of having satisfactorily determined in flight his position by celestial observations not less than twenty-five times by night and not less than twenty-five times by day in conjunction with radio, altimetry or other aids to air navigation and of having applied them to the navigation of the aircraft.

3.1.1.3.3. An applicant who has satisfactorily completed a course of approved training in flight navigation shall be deemed to have met the experience requirements in 3.1.1.3.1.

3.1.1.4. Skill. He shall demonstrate, or have demonstrated, in flight by day and by night, his competency in navigation of aircraft by dead-reckoning, celestial and other navigational methods.

3.1.1.5. Medical fitness. He shall have established his medical fitness on the basis of compliance with the following medical requirements:

Physical requirement ..	No. 2
Visual requirement ..	No. 2
Colour perception requirement ..	No. 1
Hearing requirement ..	No. 1

RECOMMENDATION.—Visual requirement No. 1 should be met

3.1.2.—PRIVILEGES OF THE HOLDER OF A LICENCE AND THE CONDITIONS TO BE OBSERVED IN EXERCISING SUCH PRIVILEGES

Subject to compliance with the requirements specified in 1.2.5. and 1.2.6, the privileges of the holder of a flight navigator licence shall be to act as flight navigator in any aircraft, provided he has familiarized himself with all pertinent and current information.

3.2.—Flight engineer (flight mechanic)

Note.—The term in brackets is given as an acceptable alternative to that immediately preceding it. Each Contracting State is expected to use in its own regulations, the one that it prefers.

3.2.1.—REQUIREMENTS FOR THE ISSUE OF A LICENCE

A Contracting State shall require an applicant for a flight engineer (flight mechanic) licence to meet the following requirements in respect of age, knowledge, experience, skill and medical fitness:

- 3.2.1.1. Age. He shall be not less than twenty-one years of age.
- 3.2.1.2. Knowledge. He shall satisfy the Competent Licensing Authority as to his knowledge of:
 - (a) elementary theory of flight and aerodynamics;
 - (b) general principles of maintenance and functioning of airframes, powerplants and installed equipment in aircraft normally requiring a flight engineer (flight mechanic);
 - (c) methods of effecting, in flight, minor repairs, adjustments and replacements;
 - (d) aircraft performance in respect of speed limitations and action to be taken in the event of a failure or a partial failure of one or more power-plants;
 - (e) flight planning based on loading, centre-of-gravity computations, performance, fuel consumption, engine power and efficiency tables and curves; control of power output and the effect thereon of varying meteorological conditions;
 - (f) the rules and regulations governing civil aviation which are pertinent to the duties of a flight engineer (flight mechanic).

3.2.1.3. Experience. He shall have completed not less than fifty hours of flight training or the equivalent thereof in the performance of the duties of a flight engineer (flight mechanic).

3.2.1.4. Skill. He shall demonstrate, or have demonstrated in flight his competency in the duties of a flight engineer (flight mechanic) including competency in emergency procedures.

3.2.1.5. Medical fitness. He shall have established his medical fitness on the basis of compliance with the following medical requirements:

Physical requirement ..	No. 2
Visual requirement ..	No. 3
Colour perception requirement ..	No. 1
Hearing requirement ..	No. 1

3.2.2.—PRIVILEGES OF THE HOLDER OF A LICENCE AND THE CONDITIONS TO BE OBSERVED IN EXERCISING SUCH PRIVILEGES

Subject to compliance with the requirements specified in 1.2.5 and 1.2.6, the privileges of the holder of a flight engineer (flight mechanic) licence shall be to act in the capacity of flight engineer (flight mechanic) in any aircraft provided that within the preceding twelve months he has:

- (a) demonstrated, under supervision, his competency to undertake the duties of a flight engineer (flight mechanic) in that type of aircraft and has familiarized himself with all current information concerning the pertinent operating procedures for such aircraft; or
- (b) had equivalent flight engineering experience in that type of aircraft.

3.3.—Flight radio operator

3.3.1.—REQUIREMENTS FOR THE ISSUE OF A LICENCE

In addition to requiring an applicant for a flight radio operator licence to comply with the certification requirements specified in the general radio regulations annexed to the International Telecommunications Convention, a Contracting State shall require such applicant to meet the following requirements in respect of age, knowledge, experience, skill and medical fitness:

3.3.1.1. Age. He shall be not less than eighteen years of age.

3.3.1.2. Knowledge. He shall satisfy the Competent Licensing Authority as to his knowledge of:

- (a) those sections of ICAO publications relating to radio telephone and radio telegraph operating practices and procedures;
- (b) pertinent sections of ICAO publications relating to radio telephone and Recommended Practices—air traffic control;
- (c) the elementary principles of all radio systems included in the minimum requirements specified in the Standards and Recommended Practices—international air operations.

3.3.1.3. Experience. He shall have:

- (a) completed not less than four months' satisfactory experience as a radio telegraph operator and demonstrated his proficiency during twenty-five hours of flight in an aircraft equipped with radio in accordance with the currently effective minimum international requirements; or
- (b) satisfactorily completed a course of approved training.

3.3.1.4. Skill. He shall demonstrate, or have demonstrated his competency in:

- (a) the manipulation and adjustment of the operating controls of a typical radio telegraph transmitter and receiver, radio telephone transmitter and receiver, and radio apparatus used for the purpose of navigation;
- (b) the visual inspection and pre-flight operational check of an aircraft radio installation in such detail as is necessary to detect faults which should be revealed in such inspection, and to correct such faults that do not require the use of special tools or instruments;
- (c) the transmission and reception of telephony;
- (d) the transmission and aural reception of International Morse Code in groups (letters, figures and signs of punctuation) at a speed of not less than twenty groups per minute and plain language at a speed of not less than twenty-five words per minute. Code groups shall average five characters, each figures or punctuation mark counting as two characters, and plain language shall average five characters to the word. Each test shall be of not less than five minutes' duration.

3.3.1.5. Medical fitness. He shall have established his medical fitness on the basis of compliance with the following medical requirements:

Physical requirement ..	No. 2
Visual requirement ..	No. 8
Colour perception requirement ..	No. 1
Hearing requirement ..	No. 1

3.3.2.—PRIVILEGES OF THE HOLDER OF A LICENCE AND THE CONDITIONS TO BE OBSERVED IN EXERCISING SUCH PRIVILEGES

3.3.2.1. Subject to compliance with the requirements specified in 1.2.5, 1.2.6 and 3.3.2.2, the privileges of the holder of a flight radio operator licence shall be to act as flight radio operator in any aircraft provided that he has familiarized himself with all pertinent and current information regarding the types of aircraft radio equipment and operating procedures to be used.

3.3.2.2. Where the knowledge and skill of the applicant has not been found satisfactory in respect of radio telephone equipment, the Competent Licensing Authority may issue a flight radio operator licence with endorsement limiting operation to radio telegraph equipment. The holder of a licence with such endorsement shall not operate radio telephone equipment in aircraft.

3.4.—Flight radio telephone operator

Note.—Where the knowledge and skill of an applicant has been established as satisfactory in respect of the certification requirements for the restricted radiotelephony operator's certificate specified in the general radio regulations annexed to the International Telecommunication Convention and the applicant has met the requirements that are pertinent to the operation of the radiotelephone on board an aircraft, a Contracting State may endorse a licence already held by the applicant (as provided for in Art. XXIII) or issue a separate licence as appropriate.

CHAPTER 4.—LICENCES AND RATINGS FOR PERSONNEL OTHER THAN FLIGHT CREW MEMBERS

4.1.—Aircraft maintenance engineer (aircraft maintenance mechanic) Type II

Note.—The term in brackets is given as an acceptable alternative to that immediately preceding it. Each Contracting State is expected to use in its own regulations, the one it prefers.

4.1.1.—REQUIREMENTS FOR THE ISSUE OF A LICENCE

A Contracting State shall require an applicant for an aircraft maintenance engineer (aircraft maintenance mechanic) Type II licence for maintenance work on aeroplanes operating in scheduled international air services and in non-scheduled international air transport operations for remuneration or hire, to meet the following requirements in respect of age, knowledge and experience:

4.1.1.1. Age. He shall be not less than twenty-one years of age.

4.1.1.2. Knowledge. He shall satisfy the Competent Licensing Authority as to his knowledge of whichever of the following elements are appropriate to the privileges to be granted:

- (a) the assembly, functioning, inspection, servicing and maintenance, and principles of construction of aircraft, airframes or engines, including their installed equipment;
- (b) the regulations pertinent to an aircraft maintenance engineer (aircraft maintenance mechanic) Type II.

4.1.1.3. Experience. He shall have had the following experience in the maintenance and inspection of aircraft, including installed equipment:

(1) for the issue of a licence with full privileges, at least:

- (a) three years; or
- (b) two years inclusive of a satisfactorily completed course of approved training that will give an equivalent level of practical experience;

(2) for the issue of a licence with privileges restricted in accordance with 4.1.2.2. (a), a period of time that will enable a level of competency equivalent to that given in (1) to be attained, provided that this is not less than:

- (a) two years; or
- (b) if a course of approved training has been satisfactorily completed, such a period as the State considers necessary to give an equivalent level of practical experience.

RECOMMENDATION.—The above years' experience required under 4.1.1.3. (1) (a) should be increased to four years' experience.

4.1.2.—PRIVILEGES OF THE HOLDER OF A LICENCE AND THE CONDITIONS TO BE OBSERVED IN EXERCISING SUCH PRIVILEGES

4.1.2.1. Subject to compliance with requirements specified in 1.2.5 and 4.1.2.2, the privileges of the holder of an aircraft maintenance engineer (aircraft maintenance mechanic) Type II licence shall be:

—to certify an aircraft, airframe or engine as airworthy after minor repairs, authorized minor modifications, and the installation of previously approved engine (s), accessories

instruments and/or items of equipment and to issue a maintenance release (Certificate of Safety for Flight) after inspection, maintenance operations and/or routine servicing.

4.1.2.2. The privileges of the holder of an aircraft maintenance engineer (aircraft maintenance mechanic) Type II licence specified in 4.1.2.1. shall be exercised only:

- (a) in respect of such aircraft, airframes and engines as are entered on his licence either specifically or under broad categories;
- (b) provided that he has familiarized himself with all pertinent and current information regarding the maintenance and airworthiness of the particular type of aircraft, airframe and engine for which he is issuing a maintenance release;
- (c) on condition, that within the preceding twenty-four months, either he has served as a licensed aircraft maintenance engineer (aircraft maintenance mechanic) Type II for not less than six months, or has satisfied the Competent Licensing Authority that he is able to meet the Standards prescribed for the issue of a licence.

4.1.3.—VESTING OF PRIVILEGES IN AN APPROVED ORGANIZATION.

The Standards in 4.1.1. and 4.1.2. apply to the granting of licences to individuals. Where, as an alternative to this method, privileges equivalent to those in 4.1.2.1. are vested in an approved organization, the Contracting State shall ensure by the requirements it imposes for approval of the organization that an equivalent level of competency is maintained. In such an approved organization the Contracting State shall ensure that the privilege of issuing a maintenance release is restricted to individuals who are not less than twenty-one years of age and who have knowledge and experience equivalent to that of 4.1.1.2. and 4.1.1.3.

including their respective accessories, instruments and items of equipment and installation thereof provided that such overhauls, repairs and/or modifications incorporate the fitment only of approved parts and components.

Note.—These privileges do not include the privileges of issuing a maintenance release (Certificate of Safety for Flight) except as provided in 4.2.3.

4.2.2.2. The privileges of the holder of an aircraft maintenance engineer (aircraft maintenance mechanic) Type I licence, specified in 4.2.2.1 shall be exercised only:

- (a) in respect of such operations or aircraft, airframes, engines or components as are entered on his licence either specifically or under broad categories;
- (b) provided that he has familiarized himself with all pertinent and current information regarding the air worthiness of the particular type of aircraft, airframe, engine or component he is certifying;
- (c) on condition that within the preceding twenty-four months either he has served as a licensed aircraft maintenance engineer (aircraft maintenance mechanic) Type I for not less than six months or has satisfied the Competent Licensing Authority that he is able to meet the Standards prescribed for the issue of a licence.

4.2.3.—EXERCISE OF JOINT PRIVILEGES OF TYPE I AND TYPE II LICENCES

The privileges given in 4.1.2.1 and 4.2.2.1 may be conferred by a single licence in lieu of issuing separate Type I and Type II licences provided that the requirements for the issue of both licences, as specified in 4.1.1. and 4.2.1, have been met. The privileges so granted shall be exercised in accordance with the conditions stated in 4.1.2.2 and 4.2.2.2.

4.2.4.—VESTING OF PRIVILEGES IN AN APPROVED ORGANIZATION

The Standards in 4.2.1 and 4.2.2 apply to the granting of licences to individuals. Where, as an alternative to this method, privileges equivalent to those in 4.2.2.1 are vested in an approved organization, the Contracting State shall ensure by the requirements it imposes for approval of the organization that an equivalent level of competency is maintained.

2.—Aircraft maintenance engineer (aircraft maintenance mechanic) Type I

Note.—The term in brackets is given as an acceptable alternative to that immediately preceding it. Each Contracting State is expected to use in its own regulations, the one it prefers.

4.2.1.—REQUIREMENTS FOR THE ISSUE OF A LICENCE

A Contracting State shall require an applicant for an aircraft maintenance engineer (aircraft maintenance mechanic) Type I licence for maintenance work on aeroplanes operating in scheduled international air services and in non-schedule international air transport operations for remuneration or hire, to meet the following requirements in respect of age, knowledge and experience:

4.2.1.1. Age. He shall be not less than twenty-one years of age.

4.2.1.2. Knowledge. He shall satisfy the Competent Licensing Authority as to his knowledge of whichever of the following elements are appropriate to the privileges to be granted:

- (a) the assembly, functioning, inspection, and principles of construction of aircraft, airframes or engines including their respective accessories, instruments and items of equipment and installation thereof;
- (b) methods and procedure for inspection and approval of the repair, overhaul and functional testing of aircraft, airframes or engines including their respective components, accessories, instruments and items of equipment and installation thereof;
- (c) the regulations pertinent to the duties of an aircraft maintenance engineer (aircraft maintenance mechanic) Type I.

4.2.1.3. Experience. He shall have completed not less than five years' experience in the inspection, overhaul, authorized repair and approved modification of aircraft, including its engine(s), accessories, instruments and items of equipment, provided that:

- (a) where the applicant has satisfactorily completed a course of approved training, the requirement for experience may be reduced to a period of not less than three years inclusive of such course; or
- (b) where the Competent Licensing Authority desires to restrict the privileges in accordance with 4.2.2.2 (a), the requirement for experience may be reduced to such a period of time that an equivalent level of competency is attained.

4.2.2.—PRIVILEGES OF THE HOLDER OF A LICENCE AND THE CONDITIONS TO BE OBSERVED IN EXERCISING SUCH PRIVILEGES

4.2.2.1. Subject to compliance with the requirements specified in 1.2.5 and 4.2.2.2, the privileges of the holder of an aircraft maintenance engineer (aircraft maintenance mechanic) Type I licence, shall be:

—to certify as airworthy any overhaul, authorized repair or authorized modification of an aircraft, airframe or engine

4.3.—Aircraft radio engineer (aircraft radio mechanic)

Note.—The term in brackets is given as an acceptable alternative to that immediately preceding it. Each Contracting State is expected to use in its own regulations, the one it prefers.

4.3.1.—REQUIREMENTS FOR THE ISSUE OF A LICENCE

RECOMMENDATIONS—

4.3.1.1. Subject to the provisions of 4.3.2. and 4.3.3, a Contracting State should require on applicant for an aircraft radio engineer (aircraft radio mechanic) licence to meet the following requirements in respect of age, knowledge, experience and skill.

Note.—The foregoing is not intended to preclude the issuance of a lower competency qualification, based on the requirements of 4.3.1.3, 4.3.1.4 and 4.3.1.5, relating to:

- (a) the performance of routine daily inspection, minor repair, approved replacement and minor modification; or
- (b) work on specific categories of aircraft radio and associated electrical equipment, providing the privileges of the holder are correspondingly limited.

4.3.1.2. Age. He should be not less than eighteen years of age.

4.3.1.3. Knowledge. He should satisfy the Competent Licensing Authority as to his knowledge of:

- (a) the general principles of electricity and of the theory of radio including circuits and units; receivers and transmitters; power supplies; interference; propagation and aeriels; intercommunication devices;
- (b) the principles of operation of navigational aids and the associated equipment in aircraft and on the ground;
- (c) the use of aircraft radio installation diagrams and blueprint and appropriate instruction manuals;
- (d) the regulations pertinent to the work of an aircraft radio engineer (aircraft radio mechanic);
- (e) applied radio practices, including the use and maintenance of tools and precision instruments in current use; knowledge of materials used in aircraft construction and radio and ancillary apparatus; types and functions of electrical cables and wires in current use; splicing and rigging of aircraft aeriels; operation of general and specialized test equipment; electrical supply systems for aircraft; installation, servicing and repair of aircraft radio and associated electrical equipment; tuning, testing and calibration of such equipment; the construction and servicing of aeriels; fault finding;

4.3.1.4. Experience. He should:

- (a) have satisfactorily completed a course of approved training and, in addition, have completed not less than one year of practical experience in the maintenance, repair and overhaul of radio and associated electrical equipment including not less than six months of such experience with equipment used in aircraft; or
- (b) have completed not less than three years' practical experience in the maintenance, repair and overhaul of radio and associated electrical equipment including not less than one year's such experience with equipment used in aircraft.

4.3.1.5. Skill. He should demonstrate his ability to the satisfaction of the Competent Licensing Authority.

Note.—Guidance material in this respect will be found in the ICAO Training Manual (Doc 7192-AN/857, Part 9).

4.3.1.6. Privileges. Subject to compliance with the requirements specified in 1.2.5. and, provided he has at his disposal appropriate equipment and facilities, the privileges of the holder of an aircraft radio engineer (aircraft radio mechanic) licence should be to carry out, supervise, or certify:

- (a) the installation, testing and maintenance;
- (b) the repair, overhaul and approved modification of aircraft radio and associated electrical equipment.

4.3.2. RECOMMENDATION.—

The holder of a licence of the type specified in 4.1 or 4.2, who complies with the requirements specified in 4.3.1, should be permitted to have the authorization to exercise the privileges of an aircraft radio engineer (aircraft radio mechanic) entered on the existing licence.

4.3.3.—VESTING OF PRIVILEGES IN AN APPROVED ORGANIZATION

The recommendations in 4.3.1 and 4.3.2 apply to individuals. Where, as an alternative, privileges equivalent to those in 4.3.1.6 are vested in an approved organization, the Contracting State shall ensure by the requirements it imposes for approval of the organization that an equivalent level of competency is maintained.

4.4.—Air traffic controller

4.4.1.—REQUIREMENTS FOR THE ISSUE OF A LICENCE

A Contracting State shall require an applicant for an air traffic controller licence to meet the following requirements in respect of age, knowledge and experience and the requirements for at least one of the controller ratings set out in 4.4.2.1, 4.4.2.2. and 4.4.2.3 provided that unlicensed State employees may operate as air traffic controllers on condition that they meet the same requirements.

4.4.1.1. Age. He shall be not less than twenty-one years of age.

4.4.1.2. Knowledge. He shall satisfy the Competent Licensing Authority as to his:

- (a) knowledge of the language or languages nationally designated for use in air traffic control and ability to speak such language or languages without accent or impediment which would adversely affect radio conversation;
- (b) knowledge of Rules of the Air as set out in relevant ICAO publications;
- (c) knowledge of air traffic control practices and procedures as set out in relevant ICAO publications with particular reference to those required under IFR;
- (d) knowledge of pertinent sections of ICAO publications relating to communication facilities and procedures including radiotelephony phraseologies and procedures;
- (e) knowledge of the principles of air navigation including the use of altimeters;
- (f) knowledge of pertinent types of radio and visual aids to air navigation, their use and limitations;
- (g) ability to make an appreciation of synoptic charts, weather reports and forecasts;
- (h) knowledge of the performance of aircraft of different types, in so far as it affects air traffic control operations.

4.4.1.3. Experience. He shall have:

- (a) completed not less than twelve months' satisfactory experience as pilot, flight navigator, flight radio operator, flight operations officer, ground radio operator handling air-ground communications; or
- (b) completed not less than nine months' satisfactory service as assistant to a qualified air traffic controller.

Note.—The experience requirements specified in 4.4.2.1.2, 4.4.2.2.2, 4.4.2.3.2 and 4.4.2.4.3 may be included as part of the experience specified in 4.4.1.3 (b).

4.4.2.—AIR TRAFFIC CONTROLLER RATINGS

Air traffic controller ratings shall comprise aerodrome control, approach control, area control and radar ratings, the requirements for the issue of which are set out in 4.4.2.1, 4.4.2.2, 4.4.2.3 and 4.4.2.4 respectively, and the privileges of which are set out in 4.4.3.

4.4.2.1. Requirements for aerodrome control rating. In addition to requiring an applicant for an aerodrome control rating to establish his medical fitness, a Contracting State shall require such applicant to satisfy the Competent Licensing Authority as to his knowledge and experience in respect of the aerodrome for which the rating is sought.

4.4.2.1.1. Knowledge. He shall satisfy the Competent Licensing Authority as to his knowledge of:

- (a) local aerodrome rules;
- (b) characteristics of local air traffic;
- (c) co-ordination procedures between the aerodrome control unit and the various air traffic services units, as appropriate;
- (d) local terrain and prominent landmarks;
- (e) local procedures for alerting of the various emergency services;
- (f) identifying abbreviations and other pertinent data regarding meteorological reports available within a circular area of a radius of twenty-five nautical miles, measured from the centre of the aerodrome;
- (g) identifying signals, frequencies and other pertinent data regarding air navigation facilities within a circular area of a radius of twenty-five nautical miles, measured from the centre of the aerodrome.

4.4.2.1.2. Experience. He shall have:

- (a) satisfactorily completed a course of approved training, and have served satisfactorily under a qualified aerodrome controller for not less than one month within the twelve months' period immediately preceding application; or
- (b) in the case where no course of approved training is undertaken, the period of service under a qualified aerodrome controller shall not be less than six months within the twelve months' period immediately preceding application; or
- (c) in the case of applicants already holding an air traffic controller licence with an approach or area control rating entered thereon the period of service under a qualified aerodrome controller shall not be less than one month.

4.4.2.1.3. Medical fitness.

RECOMMENDATION.—He should have established his medical fitness on the basis of compliance with the following medical requirements:

Physical requirement	..	No. 4
Visual requirement	..	No. 1
Colour perception requirement	..	No. 1
Hearing requirement	..	No. 1

4.4.2.2. Requirements for approach control rating. A Contracting State shall require such applicant to satisfy the Competent Licensing Authority as to his knowledge and experience in respect of the aerodrome or aerodromes for which the rating is sought.

4.4.2.2.1. Knowledge. He shall satisfy the Competent Licensing Authority as to his knowledge of:

- (a) local aerodrome, approach and control zone rules;
- (b) characteristics of local air traffic;
- (c) co-ordination procedures between the approach control unit and the various air traffic services units, as appropriate;
- (d) instrument approach, departure holding and missed approach procedures;
- (e) electronic aids to air traffic control;
- (f) terrain and prominent landmarks;
- (g) search and rescue procedures and pertinent facilities;
- (h) local procedures for alerting of the various emergency services;
- (i) identifying abbreviations and other pertinent data regarding meteorological reports available within a circular area of a radius of 100 nautical miles, measured from the centre of the control zone;
- (j) identifying signals, frequencies and other pertinent data regarding air navigation facilities within a circular area of a radius of 100 nautical miles, measured from the centre of the control zone.

4.4.2.2. Experience. He shall have :

- (a) satisfactorily completed a course of approved training ; and have satisfactorily served under a qualified approach controller for not less than three months within the twelve months' period immediately preceding application ; or
- (b) in the case where no course of approved training is undertaken the period of service under a qualified approach controller shall not be less than six months within the twelve months' period immediately preceding application ; or
- (c) in the case where the applicant is already holding an air traffic controller licence with an aerodrome or area control rating entered thereon the period of service under a qualified approach controller shall not be less than two months.

4.4.2.2.3. Medical fitness.

Note.—Pending the development of appropriate medical requirements for an approach control rating the Recommended Practices under 4.4.2.1.3. may be used as a guide.

4.4.2.3. Requirements for an area control rating. A Contracting State shall require an applicant for an area control rating to satisfy the Competent Licensing Authority as to his knowledge and experience of the following subjects in respect of the control area for which the rating is sought.

4.4.2.3.1. Knowledge. He shall satisfy the Competent Licensing Authority as to his knowledge of :

- (a) terrain and prominent landmarks ;
- (b) co-ordination procedures between the area control centre and the various air traffic services units, as appropriate ;
- (c) identifying signals, frequencies and other pertinent data regarding navigation facilities ;
- (d) frequencies, procedures and other pertinent data regarding radio communication facilities ;
- (e) appropriate instrument approach, departure, holding and missed approach procedures ;
- (f) peculiarities of meteorological conditions and the sources of meteorological data ;
- (g) aerodromes and air traffic conditions ;
- (h) search and rescue procedures and pertinent facilities.

4.4.2.3.2. Experience. He shall have :

- (a) satisfactorily completed a course of approved training, and have satisfactorily served under a qualified area controller for not less than three months within the twelve months' period immediately preceding application ; or
- (b) in the case where no course of approved training is undertaken the period of service under a qualified area controller shall not be less than six months within the twelve months' period immediately preceding application ; or
- (c) in the case where the applicant is already holding an air traffic controller licence with an aerodrome or approach control rating entered thereon the period of service under a qualified area controller shall not be less than two months.

4.4.2.4. Requirements for radar rating. A Contracting State shall require an applicant for a radar rating to be a licensed air traffic controller, as specified in 4.4.1, holding the control rating appropriate to the function to be performed and to satisfy the Competent Licensing Authority as to his knowledge of the subjects specified in 4.4.2.4.2, and his experience as specified in 4.4.2.4.3, in respect of the aerodrome or aerodromes and the control area for which the radar rating is sought, and in respect of the specific radar equipment in use.

Note 1.—This Standard requires the applicant to be the holder of an aerodrome, approach or area control rating appropriate to the radar control function to which he is assigned.

Note 2.—This Standard is not intended to imply that the radar rating cannot be incorporated in the aerodrome, approach or area control rating.

4.4.2.4.1. RECOMMENDATION.—

Radar ratings should be divided into approach (precision) radar rating (PAR), approach (surveillance) radar rating (SRE) and area (surveillance) radar rating.

4.4.2.4.2. Knowledge. He shall satisfy the Competent Licensing Authority as to his knowledge of :

- (a) Principles of radar ;
- (b) the characteristics of aircraft of different types in so far as they affect radar control ;
terrain and other factors having a significant influence on radar performance ;
- (d) effects of meteorological conditions on radar performance ;

- (e) safe clearance paths and obstacle clearance limits ;
- (f) co-ordination procedures with other radar equipped and non-radar equipped air traffic services units, as appropriate ;
- (g) radiotelephony, phraseology and communication procedures relevant to the function to be performed ;
- (h) emergency radar procedures ;
- (i) identification procedures ;
- (j) application of radar separation standards ;
- (k) relevant radar equipment characteristics, such as coverage, controls, setting up procedures, anti-clutter devices ;
- (l) relevant radar control procedures, such as : PAR, SRE.

4.4.2.4.3. Experience. He shall have :

- (a) satisfactorily completed a course of approved training and have satisfactorily served under a qualified radar controller for not less than one month within the twelve months' period immediately preceding application ; or
- (b) satisfactorily served under a qualified radar controller for not less than three months within the twelve months' period immediately preceding application :

provided that :

- (i) in the case of a controller to be employed on precision approach radar duties, his experience under (a) or (b) shall have included not less than 200 precision approaches of which not more than 100 have been carried out using a training device approved by the Competent Licensing Authority and of which not less than 50 have been carried out on precision radar equipment of the type in use at the aerodrome of duty ;
- (ii) in the case of a controller to be employed on approach surveillance radar duties only, the experience under (a) shall have included not less than 25 plan position indicator (PPI) approaches or the experience under (b) shall have included not less than 50 PPI approaches, all approaches to have been carried out on surveillance equipment of the type in use at the unit for which a rating is sought.

4.4.2.4.4. Skill. He shall demonstrate his ability to the satisfaction of the Competent Licensing Authority and such demonstration shall include a practical examination on ability to carry out any of the practices specified in 4.4.2.4.2 (f) to (l).

4.4.2.4.5. Medical fitness.

RECOMMENDATION.—He should have established his medical fitness on the basis of compliance with the medical requirements set out in 4.4.2.1.3.

4.4.3.—PRIVILEGES OF THE HOLDER OF AIR TRAFFIC CONTROLLER RATINGS AND THE CONDITIONS TO BE OBSERVED IN EXERCISING SUCH PRIVILEGES

4.4.3.1. Subject to compliance with the requirements specified in 1.2.5. and 1.2.6, the privileges of the holder of an air traffic controller licence with one or more of the under-mentioned ratings entered thereon shall be :

4.4.3.1.1. Aerodrome control rating : to provide, or supervise the provision of aerodrome control service for the aerodrome or aerodromes for which he is rated, provided that he has familiarized himself with all information that is pertinent and current.

4.4.3.1.2. Approach control rating : to provide, or supervise the provision of approach control service for the aerodrome or aerodromes for which he is rated within the airspace designated by the appropriate authority as being under the jurisdiction of the unit providing approach control service, provided that he has familiarized himself with all information that is pertinent and current.

4.4.3.1.3. Area control rating : to provide, or supervise the provision of area control service within the control area for which he is rated provided that he has familiarized himself with all information that is pertinent and current.

4.4.3.1.4. Radar rating. To provide or supervise the provision of those control services for which he is rated, including, as relevant :

- (a) the use of particular precision approach radar equipment installed at the designated aerodrome
- (b) within the airspace under the jurisdiction of the designated approach control unit, the use of particular surveillance radar equipment for approach control service ;
- (c) within the airspace under the jurisdiction of the designated area control unit, the use of particular surveillance radar equipment for area control service.

4.4.3.1.4.1. **RECOMMENDATION.**—When radar ratings are divided into approach (precision) radar rating, approach (surveillance) radar rating and area (surveillance) radar rating, the privileges should be as indicated in 4.4.3.1.4. (a), (b) and (c) respectively.

4.4.3.2. A rating shall become invalid when an air traffic controller has ceased to exercise the privileges of the rating for a period of six months or more in the case of aerodrome control, approach control and area control ratings, and of three months or more in the case of radar ratings. A rating shall remain invalid until such time as the controller has again demonstrated to the Competent Licensing Authority his ability to exercise the privileges of the rating.

4.5.—Flight operations officer

RECOMMENDATIONS—

4.5.1 When, in the opinion of a Contracting State, operating conditions are such as to require flight operations officers, such Contracting State should require applicants for such licences to meet the following requirements in respect of age, knowledge, experience and skill.

Note.—Annex 6 specifies that any licensing of flight operations officers shall be in accordance with the laws of the State of Registry.

4.5.1.1. Age. He should be not less than twenty-one years of age.

4.5.1.2. Knowledge. He should satisfy the Competent Licensing Authority as to his knowledge of :

- (a) the provisions of the rules and regulations which are pertinent to air transportation ;
- (b) the characteristics of not less than one type of aircraft used in scheduled operation, with particular reference to performance, gross load, pay loads with various fuel loads, fuel capacity, fuel consumption at specified power outputs at various altitudes, most economical speed at which level flight can be maintained, and loading charts ;
- (c) weather map, weather forecast, and weather abbreviations symbols and nomenclature ;
- (d) basic meteorology, particularly with regard to the effect of weather on scheduled air operations ;
- (e) the operation of radio navigational facilities and radio communication facilities including weather conditions adversely affecting them and the communication procedures and practices used between aircraft and ground stations ;
- (f) principles of air navigation, with particular reference to instrument flight operation ;
- (g) use and limitations of altimeters, particularly with respect to barometric settings ;
- (h) air traffic control procedures.

4.5.1.3 Experience.

4.5.1.3.1 He should, during the three years immediately preceding the date of his application, have completed two years' service in any one or in any combination of the capacities specified in (a) to (e) inclusive, provided that in any combination of experience the period served in any one of these capacities should not be less than one year :

- (a) a pilot member of the crew in air transportation or scheduled military operations ; or
- (b) a flight navigator in air transportation or scheduled military operations ; or
- (c) a radio operator in air transportation or scheduled military operations ; or
- (d) a meteorologist in an organization dispatching aircraft in air transportation or scheduled military operations ; or
- (e) an air traffic controller ; or a technical supervisor of flight operations officers or air transportation or military flight operations systems ;

or

4.5.1.3.2 He should have served as an assistant in the dispatching of air transport or scheduled military aircraft for not less than one year within the two years immediately preceding the date of his application ;

or

4.5.1.3.3 He should have satisfactorily completed a course of approved training.

4.5.1.3.4 Applicants qualifying under 4.5.1.3.1, 4.5.1.3.2 and 4.5.1.3.3 should have served in the dispatching of air transport aircraft under the supervision of a licensed flight operations officer for not less than ninety days within the six months immediately preceding the date of his application.

4.5.1.4 Skill. He should demonstrate his ability to :

- (a) make a reasonably accurate and intelligent analysis of a series of daily weather maps, in accordance with modern methods, and forecast therefrom the weather conditions pertinent to air transportation ;
- (b) make an accurate and detailed analysis from a series of daily weather maps and weather reports and in accordance with modern methods, of weather conditions prevailing in the general neighbourhood of a specific air route and to forecast weather trends pertinent to air transportation with particular reference to designated terminals ;
- (c) use charts or graphs to determine the most economical fuel consumption settings of an aircraft at given altitudes ; and
- (d) dispatch and assist a hypothetical flight in assumed adverse weather conditions.

4.5.2.—PRIVILEGES OF THE HOLDER OF A LICENCE AND THE CONDITIONS TO BE OBSERVED IN EXERCISING SUCH PRIVILEGES

Subject to the requirements for maintenance of competency specified in 1.2.5, the privileges of the holder of a flight operations officer licence should be to serve in that capacity on any route, or portion of a route, in respect of which he meets the minimum requirements for route qualification and maintenance of qualification specified in Annex 6.

4.6.—Aeronautical station operator

4.6.1.—REQUIREMENTS FOR THE ISSUE OF A LICENCE

4.6.1.1 A Contracting State shall require an applicant for an aeronautical station operator licence to meet the following requirements in respect of age, knowledge, experience and skill provided that an individual may act as an aeronautical station operator without such a licence on condition that the State from which he will operate ensures that he has met the same requirements.

Note 1.—Aeronautical station is defined in Annex 10 as "a land station in the aeronautical mobile service carrying on a service with aircraft stations".

Note 2.—Air traffic controllers qualified to act as such under the provisions of 4.4.1 may be regarded as having met the necessary requirements.

4.6.1.2 Age. He shall be not less than eighteen years of age.

4.6.1.3 Knowledge. He shall satisfy the Competent Licensing Authority as to his knowledge of :

- (a) the basic organization of an aeronautical radiotelephony network system ;
- (b) characteristics of high frequency propagation and the use of frequency families ;
- (c) terms used in the aeronautical mobile service, procedure words and phrases, the spelling alphabet ;
- (d) the various communication codes and abbreviations used ;
- (e) the relevant aeronautical fixed service organization associated with the local radiotelephony network area or areas, with particular emphasis on the need for rapid relay of messages to and from aircraft ;
- (f) ICAO radiotelephony operating procedures, including their development and application, with particular reference to the handling of Distress, Urgency and Safety traffic.
- (g) the language or languages nationally designated for use in airground communications, and ability to speak such language or languages without accent or impediment which would adversely affect conversation ;
- (h) a general understanding of the aeronautical services provided within the State.

4.6.1.4 Experience. He shall have :

- (a) satisfactorily completed a course of approved training within the twelve months immediately preceding application, and have worked satisfactorily under a qualified aeronautical station operator for not less than two months ; or
- (b) satisfactorily served under a qualified aeronautical station operator for not less than six months during the twelve months immediately preceding application.

4.6.1.5 Skill. He should demonstrate, or have demonstrated, his competency in :

- (a) the manipulation and operation of typical transmit/receive apparatus and controls, including ancillary facilities, and radio direction finding apparatus in use ;

- (b) the visual inspection and daily operational check of the radio equipment he uses in such detail as is necessary to detect faults which should be revealed in such inspection, and to correct such faults that do not require the use of special tools or instruments;
- (c) the transmission of telephony messages, including correct microphone technique, enunciation, and speech quality,
- (d) the reception of telephony messages and, where relevant, the ability to copy radio signals and messages directly onto a typewriter.

Note.—Guidance material in this respect will be found in the ICAO Training Manual (Doc 7192-AN/857, Part 8).

4.6.1.5.1 If an extension of privileges to include operation of radio telegraphy equipment is sought, the applicant shall demonstrate, or have demonstrated his competency in:

- (i) the transmission and aural reception of International Morse Code in groups (letters, figures and signs of punctuation) at a speed of not less than sixteen groups per minute and plain language at a speed of not less than twenty words per minute. Code groups shall average five characters, each figure or punctuation mark counting as two characters, and plain language shall average five characters to the word. Each test shall be of not less than five minutes' duration; and
- (ii) the manipulation and adjustment of the operating controls of a typical aeronautical station's radio-telegraph apparatus.

4.6.2.—PRIVILEGES OF THE QUALIFIED AERONAUTICAL STATION OPERATOR AND THE CONDITIONS TO BE OBSERVED IN EXERCISING SUCH PRIVILEGES

4.6.2.1. Subject to compliance with the requirements specified in 1.2.5 and 4.6.2.2, the privileges of the holder of the qualification "aeronautical station operator" shall be to act as an operator in an aeronautical station provided that he has familiarized himself with all pertinent and current information regarding the types of equipment and operating procedures used at that aeronautical station.

4.6.2.2 Where the knowledge and skill of the applicant has also been established in respect of radiotelegraphy, the Competent Licensing Authority shall endorse the extension of operation to radiotelegraphy equipment. The holder of a qualification with such endorsement may operate radiotelegraphy as well as radiotelephony equipment in an aeronautical station.

Chapter 5.—Specifications for Personnel Licences

5.1 Personnel licences issued by a Contracting State in accordance with the provisions of 1.2.1 shall conform to the following specifications:

5.1.1.—DETAIL

The following details shall be printed on the licence:

- (I) Name of State (in bold type);
- (II) Title of licence (in very bold type);
- (III) Number;
- (IV) Name of holder in full;
- (V) Address of holder;
- (VI) Nationality of holder;
- (VII) Signature of holder;
- (VIII) Authority and where necessary, conditions under which the licence is issued;
- (IX) Certification concerning validity and authorization for holder to exercise privileges appropriate to licence;
- (X) Signature of officer issuing licence and the date of such issue;
- (XI) Seal or stamp of Authority issuing licence;
- (XII) RATINGS, e.g., category, class and type of aircraft, etc.;
- (XIII) REMARKS, i.e., special endorsements relating to limitations and endorsements for privileges;
- (XIV) Any other details desired by the State issuing the licence.

5.1.2.—PAPER

First quality paper shall be used and the items printed thereon in black.

5.1.3.—COLOUR

5.1.3.1 Where the same coloured paper is used for all classes of licence issued by a Contracting State, that colour shall be white.

5.1.3.2 Where each class of licence issued by a Contracting State carries a distinguishing colour marking, the colours shall be as follows:

- | | |
|--|---|
| (a) private pilot | — light brown |
| (b) commercial pilot | — light blue |
| (c) senior commercial pilot | — dark blue |
| (d) airline transport pilot | — dark green |
| (e) flight navigator | — red |
| (f) flight radio operator | — orange |
| (g) flight engineer | — brown |
| (h) glider pilot | — pink |
| (i) free balloon pilot | — violet |
| (j) private pilot—helicopter | — light grey |
| (k) commercial pilot—helicopter | — dark grey |
| (l) airline transport pilot—helicopter | — two or more dark grey stripes on white background |
| (m) aircraft maintenance engineer (Types I and II) | — maroon |
| (n) aircraft radio engineer | — two or more maroon stripes on white background |
| (o) air traffic controller | — yellow |
| (p) flight operations officer | — light green |
| (q) aeronautical station operator | — two or more orange stripes on white background |

5.1.4.—LANGUAGE

Licences shall be printed in the national language with a translation of items (I) and (II) as indicated in 5.1.1. in English, French or Spanish where the national language is other than one of these three.

5.1.5.—SIZE AND ARRANGEMENT OF ITEMS

(a) Arrangement of items. Item headings on the licence shall be uniformly numbered in Roman numerals as indicated in 5.1.1, so that on any licence the number will, under any arrangement, refer to the same item heading.

Note.—Item headings may be arranged in such order as may best suit the convenience of the Contracting State issuing the licence.

(b) Size.

RECOMMENDATION.—The form should be not larger than 15 × 19 centimetres.

Note.—It is the intention that the form should be as small as practicable and of such a size that when folded it would fit into the type of pocket wallet in general use.

Chapter 6.—Medical Requirements

6.1.—General medical requirements

Note.—Attention is called to the administrative clauses in 1.2.4 to 1.2.6 inclusive.

6.1.1 The Standards and Recommended Practices of this Chapter cannot include sufficient detailed specifications to cover all individual conditions and, of necessity, leave many decisions relating to the assessment of medical fitness to the discretion of the medical examiner. The assessment of medical fitness shall, therefore, be made as the result of a complete medical examination conducted throughout in accordance with high standards of medicine and having due regard to the requirements of the licence for which the candidate is applying and the conditions in which he will have to carry out his duties.

6.1.2 The medical examiner shall report to the Licensing Authority any individual case where, in his judgment, already demonstrated ability, skill and experience of a candidate could compensate for a failure to meet a prescribed medical standard without adversely influencing the safe performance of his duties when exercising the privileges of the licence.

6.1.3 The candidate shall give a statement, certified by himself, of medical facts concerning his personal, familial and hereditary history. The candidate shall be made aware of the necessity for giving a statement that is as complete and accurate as his knowledge permits, and any false statement shall be dealt with in accordance with 1.2.4.2.1.

6.1.4.—INITIAL AND SUBSEQUENT EXAMINATION

The requirements for medical re-examination to verify the continuing efficiency of the holder of a licence shall be the same as those prescribed in this Chapter for the initial examination required for the issue of the licence concerned, except where relaxations have been specifically provided for in this Chapter.

Note.—The periods for renewal for certificates of medical fitness are specified in 1.2.5.1.

6.2.—Physical requirements for license

6.2.1.—PHYSICAL REQUIREMENT NO. 1

The medical examination and assessment shall be based on the following requirements of mental and physical fitness.

6.2.1.1 The candidate shall be required to be free from such active or latent, acute or chronic, physical disability, as would entail a degree of functional incapacity which is likely to interfere with the safe handling of an aircraft at any altitude throughout a prolonged or difficult flight.

6.2.1.2 Examination of the nervous system.

6.2.1.2.1 The candidate shall have no history of significant mental or nervous trouble. He shall be required to be free from any mental impairment, or presumptive evidence of latent epilepsy. He shall be required to be free from any progressive disease of the nervous system and from any non-progressive disease of that system, the effects of which are likely to interfere with the safe handling of an aircraft. Cases of past or present insanity and cases in which syphilis, past or present, has affected the central nervous system, shall be assessed as permanently unfit.

6.2.1.2.2 Injuries of the head.

(a) Cases of simple concussion or simple fracture of the skull without associated intracranial injury shall be assessed as temporarily unfit until such time as the medical examiner is satisfied that the effects of the concussion or fracture are no longer likely to jeopardize safety in flight.

RECOMMENDATION.—If the candidate has been incapacitated for a period in excess of one month, a designated medical examiner's decision as to ultimate fitness should be reached in accordance with the following: when the licence is renewed, it should be valid only for a period of two months in the first instance, thereafter its validity should be restricted to consecutive periods of two months until the medical examiner reports that the after-effects of the concussion fracture are no longer likely to cause a sudden incapacity in flight.

(b) Cases of head injury associated with intracranial injuries shall be assessed as permanently unfit if a local lesion of the brain or meninges persists.

(c) Cases of head injury in which there has been an operation on the skull with loss of bony substance involving the two tables of the cranial vault shall be assessed as permanently unfit.

6.2.1.3 General surgical examination.

6.2.1.3.1 The candidate shall neither suffer from any wound, or injury, nor have undergone any operation, nor possess any abnormality, congenital or acquired, which is likely to interfere with the safe handling of an aircraft at any altitude throughout a prolonged or difficult flight. He shall be required to be completely free from hernia.

6.2.1.3.2 **Locomotor system.** Any active disease of the bones, joints, muscles or tendons and all serious functional sequelae of congenital or acquired disease shall be assessed as unfit. On issue or renewal of a licence, functional after-effects of lesions affecting the bones, joints, muscles or tendons and certain anatomical defects compatible with safe handling of aircraft at any altitude and throughout a prolonged or difficult flight may be assessed as fit.

6.2.1.3.3 **Digestive tract.** Any sequelae of disease or surgical intervention on any part of the digestive tract and its adnexae, liable to cause sudden incapacity in flight, in particular any obstructions due to stricture or compression shall be assessed as unfit.

6.2.1.3.4 **Thoracic cage.** Any extensive mutilation of the chest wall with collapse of the thoracic cage and sequelae of surgical procedures resulting in decreased respiratory efficiency at altitude shall be unfit.

6.2.1.3.5 **Urinary system.** Any sequelae of disease or surgical procedures on the kidneys and the urinary tracts liable to cause sudden incapacity, in particular any obstructions due to stricture or compression, shall be assessed as unfit. Compensated nephrectomy without hypertension or uraemia may be assessed as fit.

6.2.1.3.6 **RECOMMENDATION.**—A candidate who has undergone a major surgical operation on the biliary passages or the digestive tract or its adnexae, or the urinary system, which has involved a total or partial excision or a diversion of any of these organs should be assessed as unfit until such time as the medical authority designated for the purpose by the Contracting State and having access to the details of the operation concerned considers that the effects of the operation are not liable to cause sudden incapacity in the air.

6.2.1.4 General medical examination.

6.2.1.4.1 The candidate shall not suffer from any disease or disability which renders him liable suddenly to become unable to handle aircraft safely.

6.2.1.4.2 The heart shall not possess any abnormality, congenital or acquired, which is likely to interfere with safe handling of aircraft.

Note.—Respiratory arrhythmia, occasional extra systoles which disappear on exercise, increase of pulse rate from excitement or exercise, or a slow pulse not associated with auriculoventricular dissociation may be regarded as coming within "normal" limits.

6.2.1.4.2.1 Electrocardiography shall form part of the heart examination at the first issue of a licence and shall be included in re-examinations of candidates no less frequently than every five years up to the age of forty and thereafter no less frequently than every two years.

Note.—The purpose of the ECG is case finding. It does not provide sufficient evidence to justify disqualification without further thorough cardiovascular investigation.

6.2.1.4.3 The systolic and diastolic blood pressure shall be within normal limits.

6.2.1.4.4 There shall be no significant functional nor structural abnormality of the circulatory tree.

6.2.1.4.5 There shall be no acute disability of the lungs nor any active disease of the structures of the lungs, mediastinum or pleura. Radiography shall form a part of the medical examination in all doubtful clinical cases.

RECOMMENDATION.—In the case of an examination for the first issue of a licence, radiography should form a part of the chest examination and similar periodic examinations should be carried out thereafter.

6.2.1.4.6 **RECOMMENDATION.**—Cases of pulmonary emphysema should be assessed as unfit if the condition is causing symptoms.

6.2.1.4.7 Cases of active pulmonary tuberculosis, duly diagnosed, shall be assessed as unfit. Cases of quiescent or healed lesions which are known to be tuberculous, or are presumably tuberculous in origin, may be assessed as fit.

RECOMMENDATION.—Cases of doubt about the activity of a lesion, where symptoms of activity of the disease are lacking, clinically, should be assessed as temporarily unfit for a period of not less than three months from the date of the medical examination. At the end of the three months' period, a further radiographic record should be made and compared carefully with the original. If there is no sign of extension of the disease and there are no general symptoms nor symptoms referable to the chest, the candidate may be assessed as fit for three months. Thereafter, provided there continues to be no sign of extension of the disease as shown by radiographic examinations carried out at the end of each three months' period, the validity of the licence should be restricted to consecutive periods of three months. When the candidate has been under observation under this scheme for a total period of at least two years and comparison of all the radiographic records shows no changes or only retrogression of the lesion, the lesion should be regarded as "quiescent" or "healed".

6.2.1.4.8 Cases of disabling disease with important impairment of function of the gastro-intestinal tract and its adnexae shall be assessed as unfit.

6.2.1.4.8.1 Cases of significant metabolic, nutritional or endocrine disorders shall be assessed as unfit. Proven cases of diabetes mellitus shall be assessed as unfit; doubtful cases shall be assessed as unfit until the condition is proven to be non-diabetic.

6.2.1.4.9 Cases of acute and moderate enlargement of the spleen persistently below the costal margin shall be assessed as unfit.

6.2.1.4.9.1 Cases of significant localized and generalized enlargement of the lymphatic glands and of diseases of the blood shall be assessed as unfit.

RECOMMENDATION.—Cases as 6.2.1.4.9.1 due to a transient condition should be assessed as only temporarily unfit.

6.2.1.4.10 Cases presenting any signs of organic disease of the kidney shall be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit. The urine shall contain no abnormal element considered by the medical examiner to be pathological. Cases of affections of the urinary passages and of the genital organs shall be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit.

6.2.1.4.11 A candidate for the first issue of a licence who has a personal history of syphilis shall be required to furnish evidence, satisfactory to the medical examiner, that he has undergone adequate treatment.

6.2.1.4.12 Candidates of the female sex who have a history of severe menstrual disturbances that have proved unamenable to treatment and that are likely to interfere with the safe handling of aircraft shall be assessed as unfit. In the event of presumed pregnancy the candidate shall be assessed as temporarily unfit. After confinement or miscarriage the candidate shall not be permitted to exercise the privileges of her licence until she has undergone re-examination and has been assessed as fit.

RECOMMENDATION.—Candidates of the female sex who have undergone gynaecological operations should be considered individually.

6.2.1.5 *Eye examination.* The functions of the eye and its adnexae shall be normal. There shall be no active pathological condition, acute or chronic, of either eye or adnexae which is likely to interfere with its proper function to an extent that would jeopardize safety in flight.

Note.—The details of the visual requirements are set out in 6.3. and those for colour perception in 6.4.

6.2.1.6 *Ear examination.* There shall be:

- (a) no active pathological process, acute or chronic, of the internal ear or middle ear cleft;
- (b) no unhealed (unclosed) perforation of the tympanic membranes except that a single dry perforation of non-infectious origin, need not render the candidate ineligible. Licences shall not be issued or renewed in these circumstances unless the appropriate hearing requirements in 6.5 are complied with;
- (c) no permanent obstruction of the Eustachian tubes;
- (d) no permanent disturbances of the vestibular apparatus. Transient conditions may be assessed as temporarily unfit.

Note.—The details of the hearing requirements are set out in 6.5.

6.2.1.7 *Nose, throat and mouth examination.* There shall be free nasal air entry on both sides. There shall be no serious malformation nor serious, acute or chronic affection of the buccal cavity or upper respiratory tract. Defects of speech and stuttering shall be assessed as unfit.

6.2.2.—PHYSICAL REQUIREMENT NO. 2

The medical examination and assessment shall be based on the following requirements of mental and physical fitness.

Note.—It will be noted that a very close similarity exists between the texts of 6.2.1 and 6.2.2. The essential difference lies in the use, in Physical requirement No. 2, of phrases such as "safe performance of his duties" in place of the more explicit references of Physical requirement No. 1 such as "safe handling of an aircraft". Thus where such clauses are used the medical examiner might assess a candidate as medically fit for duties when the candidate's condition might have rendered him medically unfit for the duties associated with Physical requirement No. 1.

6.2.2.1. The candidate shall be required to be free from such active or latent, acute or chronic, physical disability, as would entail a degree of functional incapacity which is likely to interfere with the safe performance of his duties at any altitude throughout a prolonged or difficult flight.

6.2.2.2 *Examination of the nervous system.*

6.2.2.2.1 The candidate shall have no history of significant mental or nervous trouble. He shall be required to be free from any mental impairment, or presumptive evidence of latent epilepsy. He shall be required to be free from any progressive disease of the nervous system and from any non-progressive disease of that system, the effects of which are likely to interfere with the safe performance of his duties. Cases of past or present insanity and cases in which syphilis past or present has affected the central nervous system, shall be assessed as permanently unfit.

6.2.2.2.2 *Injuries of the head.*

(a) Cases of simple concussion or simple fracture of the skull without associated intracranial injury shall be assessed as temporarily unfit until such time as the medical examiner is satisfied that the effects of the concussion or fracture are no longer likely to jeopardize safety in flight.

RECOMMENDATION.—The recommendation of 6.2.1.2.2. (a) should be applied.

(b) Cases of head injury associated with intracranial injuries shall be assessed as permanently unfit if a local lesion of the brain or meninges persists.

(c) Cases of head injury in which there has been an operation on the skull with loss of bony substance involving the two tables of the cranial vault shall be assessed as permanently unfit.

6.2.2.3 *General surgical examination.*

6.2.2.3.1 The candidate shall neither suffer from any wound or injury, nor have undergone any operation, nor possess any abnormality, congenital or acquired, which is likely to interfere with the safe performance of his duties at any altitude throughout a prolonged or difficult flight. He shall be required to be completely free from hernia.

6.2.2.3.2 *Locomotor system.* Any active disease of the bones, joints, muscles or tendons and all serious functional sequelae of congenital or acquired disease shall be assessed as unfit. On issue or renewal of a licence, functional after-effects of lesion affecting the bones, joints, muscles or tendons and certain anatomical defects compatible with the safe performance of his duties at any altitude and throughout a prolonged or difficult flight may be assessed as fit.

6.2.2.3.3 *Digestive tract.* Any sequelae of disease or surgical intervention on any part of the digestive tract and its adnexae, liable to cause sudden incapacity in flight, in particular any obstructions due to stricture or compression shall be assessed as unfit.

6.2.2.3.4 *Thoracic cage.* Any extensive mutilation of the chest wall with collapse of the thoracic cage and sequelae of surgical procedures resulting in decreased respiratory efficiency at altitude shall be unfit.

6.2.2.3.5 *Urinary system.* Any sequelae of disease or surgical procedures on the kidneys and the urinary tracts liable to cause sudden incapacity, in particular any obstructions due to stricture or compression, shall be assessed as unfit. Compensated nephrectomy without hypertension or uraemia may be assessed as fit.

6.2.2.3.6 **RECOMMENDATION.**—A candidate who has undergone a major surgical operation on the biliary passages or the digestive tract or its adnexae, or the urinary system, which has involved a total or partial excision or a diversion of any of these organs should be assessed as unfit until such time as the medical authority designated for the purpose by the Contracting State and having access to the details of the operation concerned considers that the effects of the operation are not liable to cause sudden incapacity in the air.

6.2.2.4 *General medical examination.*

6.2.2.4.1 The candidate shall not suffer from any disease or disability which renders him liable suddenly to become unable to perform his duties safely.

6.2.2.4.2 The heart shall not possess any abnormality, congenital or acquired, which is likely to interfere with safe performance of duties.

Note.—Respiratory arrhythmia, occasional extra systoles which disappear on exercise, increase of pulse rate from excitement or exertion, or a slow pulse not associated with auriculoventricular dissociation may be regarded as coming within "normal" limits.

6.2.2.4.3 The systolic and diastolic blood pressures shall be within normal limits.

6.2.2.4.4 There shall be no significant functional nor structural abnormality of the circulatory tree.

6.2.2.4.5 There shall be no acute disability of the lungs nor any active disease of the structures of the lungs, mediastinum or pleura. Radiography shall form a part of the medical examination in all doubtful clinical cases.

RECOMMENDATION.—The recommendation of 6.2.1.4.5 should be applied.

6.2.2.4.6 **RECOMMENDATION.**—Cases of pulmonary emphysema should be assessed as unfit only if the condition is causing symptoms.

6.2.2.4.7 Cases of active pulmonary tuberculosis, duly diagnosed, shall be assessed as unfit. Cases of quiescent or healed lesions which are known to be tuberculous, or are presumably tuberculous in origin, may be assessed as fit.

RECOMMENDATION.—The recommendation of 6.2.1.4.7 should be applied.

6.2.2.4.8 Cases of disabling disease with important impairment of function of the gastro-intestinal tract and its adnexae shall be assessed as unfit.

6.2.2.4.8.1 Cases of significant metabolic, nutritional or endocrine disorders shall be assessed as unfit. Proven cases of diabetes mellitus shall be assessed as unfit; doubtful cases shall be assessed as unfit until the condition is proven to be non-diabetic.

6.2.2.4.9. Case of severe and moderate enlargement of the spleen persistently below the costal margin shall be assessed as unfit.

6.2.2.4.9.1. Cases of significant localized and generalized enlargement of the lymphatic glands and of diseases of the blood shall be assessed as unfit.

RECOMMENDATION.—Cases in 6.2.2.4.9.1 due to a transient condition should be assessed as only temporarily unfit.

6.2.2.4.10. Cases presenting any signs of organic disease of the kidney shall be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit. The urine shall contain no abnormal element considered by the medical examiner to be pathological. Cases of affections of the urinary passages and of the genital organs shall be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit.

6.2.2.4.11. A candidate for the first issue of a licence who has a personal history of syphilis shall be required to furnish evidence, satisfactory to the medical examiner, that he has undergone adequate treatment.

6.2.2.4.12. Candidates of the female sex who have a history of severe menstrual disturbances that have proved unamenable to treatment and that are likely to interfere with the safe performance of her duties shall be assessed as temporarily unfit. In the event of presumed pregnancy the candidate shall be assessed as temporarily unfit. After confinement or miscarriage the candidate shall not be permitted to exercise the privileges of her licence until she has undergone re-examination and has been assessed as fit.

RECOMMENDATION.—Candidates of the female sex who have undergone gynaecological operations should be considered individually.

6.2.2.5. **Eye examination.** The functions of the eye and its adnexae shall be normal. There shall be no active pathological condition, acute or chronic, of either eye or adnexae which is likely to interfere with its proper function to an extent that would jeopardize safety in flight.

Note.—The details of the visual requirements are set out in 6.3 and those for colour perception in 6.4.

6.2.2.6 **Ear examination.** There shall be:

- (a) no active pathological process, acute or chronic, of the internal ear or middle ear cleft;
- (b) no unhealed (unclosed) perforation of the tympanic membranes except that a dry perforation need not render the candidate ineligible. Licences shall not be issued or renewed in these circumstances unless the appropriate hearing requirements in 6.5. are complied with;
- (c) no permanent obstruction of the Eustachian tubes;
- (d) no permanent disturbance of the vestibular apparatus. Transient conditions may be assessed as temporarily unfit.

Note.—The details of the hearing requirements are set out in 6.5

6.2.2.7. **Nose, throat and mouth examination.** There shall be free nasal air entry on both sides. There shall be no serious malformation nor serious, acute or chronic affection of the buccal cavity or upper respiratory tract. Candidates suffering from serious degree of stuttering shall be assessed as unfit.

6.2.3.—PHYSICAL REQUIREMENT NO. 3

The medical examination and assessment shall be based on the following requirements of mental and physical fitness.

6.2.3.1. The candidate shall be required to be free from any congenital or acquired disability causing such degree of functional incapacity as is considered likely to interfere with the safe handling of the aircraft under ordinary conditions.

6.2.3.2. **Examination of the nervous system.**

6.2.3.2.1. The candidate shall have no history of significant mental or nervous trouble. He shall be required to be free from any mental impairment, or presumptive evidence of latent epilepsy. He shall be required to be free from any progressive disease of the nervous system and from any non-progressive disease of that system, the effects of which are likely to interfere with the safe handling of an aircraft. Cases of past or present insanity and cases in which syphilis past or present have affected the central nervous system, shall be assessed as permanently unfit.

6.2.3.2.2. **Injuries of the head.**

- (a) Cases of simple concussion or simple fracture of the skull without associated intracranial injury shall be assessed as temporarily unfit until such time as the medical examiner is satisfied that the effects of the concussion or fracture are no longer likely to jeopardize safety in flight.
- (b) Cases of head injury associated with intracranial injuries shall be assessed as permanently unfit if a local lesion of the brain or meninges persists.

(c) Cases of head injury in which there has been an operation on the skull with loss of bony substance involving the two tables of the cranial vault shall be assessed as permanently unfit; cases repaired by plates ensuring present and future integrity of the central nervous system may be assessed as fit. A one year's period shall expire before the licence is renewed.

6.2.3.3. **General surgical examination.**

6.2.3.3.1. The candidate shall neither suffer from any wound, or injury, nor have undergone any operation, nor possess any abnormality, congenital or acquired which is likely to interfere with the safe handling of an aircraft. He shall be required to be free from hernia. Cases in which the medical examiner is satisfied that a well-fitted truss will be worn may be assessed as fit.

6.2.3.3.2. **Locomotor system.** Any congenital or acquired disease of the bones, joints, muscles or tendons and all serious functional sequelae of congenital or acquired disease shall be assessed as unfit. Certain qualifying functional defects of lesion affecting the bones, joints, muscles or tendons and certain anatomical defects compatible with safe handling of aircraft in flight may be assessed as fit.

6.2.3.3.3. **Digestive tract.** Any congenital or surgical disease or intervention on any part of the digestive tract and its adnexae, liable to cause sudden incapacity in flight, in particular any obstructions due to stricture or compression shall be assessed as unfit.

6.2.3.3.4. **Thoracic cage.** Any extensive ossification of the chest wall with collapse of the thoracic cage and sequelae of surgical procedures resulting in decreased respiratory efficiency at altitude shall be unfit.

6.2.3.3.5. **Urinary system.** Any congenital or surgical disease or procedure on the kidneys and the urinary tracts liable to cause sudden incapacity, in particular any obstructions due to stricture or compression shall be assessed as unfit. Compensated nephrectomy without hypertension or uraemia may be assessed as fit.

6.2.3.3.6. **RECOMMENDATION.**

A candidate who has undergone major surgical operation on the biliary passages or the distal part of the duodenum, or the urinary system, which has involved a total or partial excision or a diversion of any of these organs should be assessed as unfit until such time as the medical authority designated for the purpose by the Contracting State and having access to the details of the operation concerned considers that the effects of the operation are not liable to cause sudden incapacity in the air.

6.2.3.4. **General medical examination.**

6.2.3.4.1. The candidate shall not suffer from any disease or disability which renders him liable, probably or to become unable to handle aircraft safely.

6.2.3.4.2. The heart shall not possess any abnormality, congenital, or acquired, which is likely to interfere with safe handling of aircraft.

Note.—Excessive sinus bradycardia, occasional extra systoles which disappear on exercise, and sinus tachycardia due to excitement or exertion, or a sinus tachycardia associated with arrhythmioventricular dissociation may be regarded as coming within "normal" limits.

6.2.3.4.3. **RECOMMENDATION.**

Electrocardiography should form part of the heart examination for the first issue of a licence and in re-examinations in all doubtful cases.

Note.—The purpose of the electrocardiogram is case finding. It does not provide sufficient evidence to justify disqualification without further thorough cardiovascular investigation.

6.2.3.4.3. The systolic and diastolic blood pressures shall be within normal limits with due regard to age.

6.2.3.4.4. There shall be no significant functional nor structural abnormality of the circulatory tree. The presence of varicosities does not necessarily entail unfitness.

6.2.3.4.5. There shall be no acute disability of the lungs nor any active disease of the structures of the lungs, mediastinum or pleura. Radiography shall form a part of the medical examination in all doubtful clinical cases.

RECOMMENDATION.—In the case of an examination for the first issue of a licence, radiography should form a part of the chest examination and similar, periodic examinations should be carried out thereafter.

6.2.3.4.6. **RECOMMENDATION.**

Cases of pulmonary emphysema should be assessed as unfit only if the condition is causing symptoms.

6.2.3.4.7. Cases of active pulmonary tuberculosis, duly diagnosed, shall be assessed as unfit. Cases of quiescent or

healed lesions which are known to be tuberculous, or are presumably tuberculous in origin, may be assessed as fit.

6.2.3.4.8 Cases of disabling disease with important impairment of function of the gastro-intestinal tract and its adnexae shall be assessed as unfit.

6.2.3.4.8.1 Proven cases of diabetes mellitus shall be assessed as unfit; doubtful cases shall be assessed as unfit until the condition is proven to be non-diabetic.

6.2.3.4.9 Cases of significant localized and generalized enlargement of the lymphatic glands and of diseases of the blood shall be assessed as unfit.

RECOMMENDATION.—Cases in 6.2.3.4.9. due to a transient condition should be assessed as only temporarily unfit.

6.2.3.4.10 Cases presenting any signs of organic disease of the kidneys shall be assessed as unfit, those due to a transient condition may be assessed as temporarily unfit. The urine shall contain no abnormal element considered by the medical examiner to be pathological. Cases of affections of the urinary passages and of the genital organs shall be assessed as unfit; those due to transient condition may be assessed as temporarily unfit.

6.2.3.4.11 A candidate for the first issue of a licence who has a personal history of syphilis shall be required to furnish evidence, satisfactory to the medical examiner, that he has undergone adequate treatment.

6.2.3.4.12 **RECOMMENDATION.**—In the event of presumed pregnancy the candidate should be assessed as temporarily unfit.

6.2.3.5 **Eye examination.** There shall be no active pathological condition, acute or chronic, of either eye or adnexae which is likely to interfere with its proper function to an extent that would jeopardize safety in flight.

Note.—The details of the visual requirements are set out in 6.3 and those for colour perception in 6.4.

6.2.3.6 **Ear examination.** There shall be:

- (a) no active pathological process, acute or chronic, of the internal ear or middle ear cleft;
- (b) no permanent disturbances of the vestibular apparatus. Transient conditions may be assessed as temporarily unfit.

Note.—The details of the hearing requirements are set out in 6.5.

6.2.3.7 **Nose, throat and mouth examination.** There shall be no serious malformation nor serious, acute or chronic affection of the buccal cavity or upper respiratory tract.

6.2.4.—PHYSICAL REQUIREMENT NO. 4.

The physical examination and assessment shall be based on the following requirements of mental and physical fitness.

The candidate shall be required to be free from any congenital or acquired disability causing such degree of functional incapacity as is considered likely to interfere with the efficient performance of his duties while exercising the privileges of his licence or of his employment.

6.2.4.2 Examination of the nervous system.

6.2.4.2.1 The candidate shall have no history of significant mental or nervous trouble. He shall be required to be free from any mental impairment, or presumptive evidence of latent epilepsy. He shall be required to be free from any progressive disease of the nervous system and from any non-progressive disease of that system, the effects of which are likely to interfere with the safe, efficient performance of his duties. Cases of insanity and cases in which syphilis, past or present, has affected the central nervous system, shall be assessed as permanently unfit.

6.2.4.2.2 Injuries of the head.

- (a) Cases of simple concussion or simple fracture of the skull without associated intracranial injury shall be assessed as temporarily unfit until such time as the medical examiner is satisfied that the effects of the concussion or fracture are no longer likely to jeopardize safety in the performance of his duties.
- (b) Cases of head injury associated with intracranial injuries shall be assessed as permanently unfit if a focal lesion of the brain or meninges persists.
- (c) Cases of head injury in which there has been an operation on the skull with loss of bony substance involving the two tables of the cranial vault shall be assessed as permanently unfit; cases repaired by plates ensuring present and future integrity of the central nervous system may be assessed as fit. A one year's period shall expire before the licence is renewed.

6.2.4.3 General surgical examination.

6.2.4.3.1 The candidate shall neither suffer from any wound, or injury, nor have undergone any operation, nor possess any abnormality, congenital or acquired, which is likely to interfere with the safe performance of his duties. He shall be required to be free from hernia. Cases in which the medical examiner is satisfied that a well-fitted truss will be worn may be assessed as fit.

6.2.4.3.2 **Locomotor system.** Any active disease of the bones, joints, muscles or tendons and all serious functional sequelae of congenital or acquired disease shall be assessed as unfit. On issue or renewal of a licence, functional after effects of lesion affecting the bones, joints, muscles or tendons and certain anatomical defects compatible with safe performance of duties may be assessed as fit.

6.2.4.3.3 **Digestive Tract.** Any sequelae of disease or surgical intervention on any part of the digestive tract and its adnexae, liable to cause sudden incapacity, in particular any obstructions due to stricture or compression shall be assessed as unfit.

6.2.4.3.4 **Urinary system.** Any sequelae of disease or surgical procedures on the kidneys and the urinary tracts liable to cause sudden incapacity, in particular any obstructions due to stricture or compression, shall be assessed as unfit. Compensated nephrectomy without hypertension or uraemia may be assessed as fit.

6.2.4.4 General medical examination.

6.2.4.4.1 The candidate shall not suffer from any disease or disability which renders him liable suddenly to become unable to perform his duties safely.

6.2.4.4.2 The heart shall not possess any abnormality, congenital or acquired, which is likely to interfere with safe performance of duties.

Note.—Respiratory arrhythmia, occasional extra systoles which disappear on exercise, increase of pulse rate from excitement or exertion, or a slow pulse not associated with auriculoventricular dissociation may be regarded as coming within "normal" limits.

6.2.4.4.2.1 **RECOMMENDATION.**—Electrocardiography should form part of the heart examination for the first issue of a licence and in re-examinations in all doubtful cases.

Note.—The purpose of the electrocardiogram is case finding. It does not provide sufficient evidence to justify disqualification without further thorough cardiovascular investigation.

6.2.4.4.3 The systolic and diastolic blood pressures shall be within normal limits with due regard to age.

6.2.4.4.4 There shall be no significant functional nor structural abnormality of the circulatory tree. The presence of varicosities does not necessarily entail unfitness.

6.2.4.4.5 There shall be no acute disability of the lungs nor any active disease of the structures of the lungs, mediastinum or pleura. Radiography shall form a part of the medical examination in all doubtful clinical cases.

RECOMMENDATION.—In the case of an examination for the first issue of a licence, radiography should form a part of the chest examination and similar periodic examinations should be carried out thereafter.

6.2.4.4.6 **RECOMMENDATION.**—Cases of pulmonary emphysema should be assessed as unfit only if the condition is causing symptoms.

6.2.4.4.7 Cases of active pulmonary tuberculosis, duly diagnosed, shall be assessed as unfit. Cases of quiescent or healed lesions which are known to be tuberculous, or are presumably tuberculous in origin, may be assessed as fit.

6.2.4.4.7.1 Cases of disabling disease, with important impairment of function of the gastro-intestinal tract and its adnexae shall be assessed as unfit.

6.2.4.4.7.2 Proven cases of diabetes mellitus shall be assessed as unfit; doubtful cases shall be assessed as unfit until the condition is proven to be non-diabetic.

6.2.4.4.8 Cases of significant localized and generalized enlargement of the lymphatic glands and of diseases of the blood shall be assessed as unfit.

RECOMMENDATION.—Cases in 6.2.4.4.8. due to a transient condition should be assessed as only temporarily unfit.

6.2.4.4.9 Cases presenting any signs of organic disease of the kidneys shall be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit. The urine shall contain no abnormal element considered by the medical examiner to be pathological. Cases of affections of the urinary passages and of the genital organs shall be assessed as unfit; those due to transient condition may be assessed as temporarily unfit.

6.2.4.4.10 A candidate for the first issue of a licence who has a personal history of syphilis shall be required to furnish evidence, satisfactory to the medical examiner, that he has undergone adequate treatment.

6.2.4.5 **Eye examination.** The functions of the eye and its adnexae shall be normal. There shall be no active pathological condition, acute or chronic, of either eye or adnexae which is likely to interfere with its proper function to an extent that would jeopardize safe performance of duties.

Note.—The details of the visual requirements are set out in 6.3 and those for colour perception in 6.4.

6.2.4.6. *Ear examinations*—There shall be

(a) no active middle ear processes acute or chronic of the internal ear or middle ear ear.

(b) no permanent disturbances of the vestibular apparatus. Present conditions may be assessed as temporarily unfit.

Notes—The details of the hearing requirements are set out in 6.5.3.2.4.7.

6.2.4.7. *Nose, throat and mouth examination*. There shall be no serious malformation nor serious, acute or chronic affection of the buccal cavity or upper respiratory tract. Defects of speech and articulation shall be assessed as unfit.

6.3. *Visual requirements for licences*

The methods in use for the measurement of visual acuity are likely to lead to differing evaluations. To achieve uniformity, therefore, each Contracting State shall ensure that equivalence in the evaluation of methods be obtained.

RECOMMENDATION—For a visual acuity test in a lighted room a test illumination level of approximately 50 lux, normally corresponding to a brightness of 30 nits should be adopted. The light level of the room should be approximately one fifth of the test illumination level.

For a visual acuity test in a darkened, or semi-darkened room a test illumination level of approximately 15 lux, normally corresponding to a brightness of 10 nits, should be adopted.

Visual acuity should be measured by means of a series of optotypes of Landolt, or similar optotypes, placed at a distance of 6 metres from the candidate, or 5 metres, as appropriate, to the method of testing adopted.

6.3.1. *VISUAL REQUIREMENT NO. 1*

The candidate shall be required to have:

- (a) normal fields of vision; and
- (b) a visual acuity of at least 20/30 (6/9, 0.7) in each eye separately with or without correcting glasses. If this visual acuity is obtained only by use of correcting glasses the vision without glasses in either or both eyes must not be less than 20/60 (6/18, 0.3) or, for a licence holder where refraction is the limiting factor 20/100 (6/30, 0.2) on renewal of a licence, provided that correcting glasses are worn when exercising the privileges of his licence.

6.3.1.1. *RECOMMENDATION*

(a) The candidate should be required to have not more than + 2.25 diopters of hypermetropia, in the case of a candidate for the initial issue of a licence.

(b) Any degree of heterophoria found in the test should be noted in the candidate's medical record.

(c) The candidate should be required to have an accommodation permitting reading of the Jaeger chart No. 3 or its equivalent at a distance of 30 centimetres, with each eye separately, allowing the use of correcting glasses for this test if it be the usual habit of the candidate to wear them.

Note—In case of a pilot who needs correction to meet either or both the near and distant visual requirements, bifocal or trifocal lenses may be required to enable him to read the instrument and overhead panels or a manual on the lap and to make use of distant vision through the windshield without removing his glasses.

6.3.2. *VISUAL REQUIREMENT NO. 2*

The candidate shall be required to have:

- (a) normal fields of vision;
- (b) a visual acuity of at least 20/40 (6/12, 0.5) in each eye separately, with or without correcting glasses. If this visual acuity is obtained only by means of correcting glasses, the vision without glasses in either or both eyes must be not less than 20/100 (6/30, 0.2) when the candidate may be assessed as fit provided that correcting glasses are worn while exercising the privileges of his licence.

6.3.2.1. *RECOMMENDATION*

The candidate should be required to have an accommodation permitting reading of the Jaeger chart No. 3 or its equivalent at a distance of 30 centimetres, with each eye separately, allowing the use of correcting glasses for this test if it be the usual habit of the candidate to wear them.

6.3.3. *VISUAL REQUIREMENT NO. 3*

The candidate shall be required to have:

- (a) normal fields of vision;
- (b) a visual acuity of at least 20/40 (6/12, 0.5) in each eye separately, with or without correcting glasses. If this visual acuity is obtained only by means of correcting glasses, the vision without glasses in either or both eyes must be not less than 20/200 (6/60, 0.1) when the candidate may be assessed as fit provided that correcting glasses are worn while exercising the privileges of his licence.

6.4. *Colour perception requirements*

(a) Any degree of heterophoria found in the test should be noted in the candidate's medical report.

(b) The candidate should be required to have an accommodation permitting reading of the Jaeger chart No. 3 or its equivalent at a distance of 30 centimetres, with each eye separately, allowing the use of correcting glasses for this test if it be the usual habit of the candidate to wear them.

6.4. *Colour perception requirements*

Each Contracting State shall use such methods of examination as will guarantee reliable testing of colour perception.

6.4.1. *COLOUR PERCEPTION—REQUIREMENT NO. 1*

The candidate shall be required to demonstrate his ability to perceive readily those colours the perception of which is necessary for the safe performance of his duties.

6.4.1.1. *RECOMMENDATION*

The candidate who is able to obtain a correct score with pseudo-isochromatic tables used in day-light (or using an artificial light of the same colour temperature) should be deemed fit without having to undergo any further test. However, a candidate who makes mistakes in such tests may nevertheless be assessed as fit on condition that he identifies readily and correctly avian coloured lights displayed by means of a recognized colour perception lantern.

Note—Specifications for colours used in aviation are given in Annexes 4, 8 and 14 to the Convention on International Civil Aviation.

6.5. *Hearing requirements for licences*

6.5.1. Each Contracting State shall establish Hearing requirements Nos. 1 and 2.

6.5.2. The candidate shall be required to be free from any hearing defect which would interfere with the safe performance of his duties in exercising the privileges of his licence.

6.5.3. *RECOMMENDATIONS*

Hearing requirements should be:

—Hearing requirement No. 1

(a) The candidate should be required not to have a hearing loss, in a quiet room, at either ear, separately, of more than 25 db at any one of the three frequencies 500, 1000 and 2000 c/s, and not more than 40 db at 3000 c/s.

(b) If the hearing loss is greater than the limits indicated in the preceding paragraph a candidate who has previously acquired and demonstrated ability, skills and experience to the satisfaction of the licensing authority may nevertheless be declared fit provided that:

(1) he has a hearing performance in each ear separately, equivalent to that of a normal person, against a background noise that will represent the masking properties of flight deck noise upon speech and beacon signals, and

(2) he is able to hear an average conversational passage in a quiet room, using both ears, at a distance of 2.5 metres (8 feet) from the examiner and with his back turned to the examiner.

—Hearing requirement No. 2

The candidate should be required to hear an average conversational noise in a quiet room, using both ears, and standing with his back towards the examiner at a distance of 2.5 metres (8 feet) from the examiner.

Note 1—A quiet room is a room in which the intensity of the background noise is less than 50 db.

Note 2—The reference threshold of the hearing losses referred to in 6.5.3 is established as the mean hearing threshold of 20 ears of young healthy persons with normal ear drums and no past or present ear disease.

Note 3—The frequency composition of the noise referred to in Hearing requirement No. 1 (b) (1) has not been defined. It is sufficient if the frequency range 600 to 4800 c/s is adequately represented. Some Contracting States at present use a noise level of about 100 db. Some States in order to calibrate the sound level use a background noise that displaces the speech intelligibility curve by 50 to 60 db.

Note 4—The use of speech material, aviation type messages in the test should not be used exclusively. Lists of phonetically constructed words are used in a number of Contracting States.

Note 5—The reference threshold of the hearing losses referred to in 6.5.3 is established as the mean hearing threshold of 20 ears of young healthy persons with normal ear drums and no past or present ear disease.

Note 6—The reference threshold of the hearing losses referred to in 6.5.3 is established as the mean hearing threshold of 20 ears of young healthy persons with normal ear drums and no past or present ear disease.

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