The Air Navigation (General) Regulations, 1949

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ARRANGEMENT OF REGULATIONS

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Note.—The Air Navigation (Radio) Regulations, 1949(a), should be consulted in respect of the requirements relating to the approval, carriage and operation of radio apparatus in aircraft, the maintenance of aircraft radio stations, the licensing and carriage of radio operators, and other matters concerning radio in aircraft.

(a) S.I. 1949 No. 375, p. 341 below.

The Minister of Civil Aviation, in exercise of the powers conferred upon him by the Air Navigation Order, 1949(a), and of all other powers enabling him in that behalf, hereby makes the following Regulations:—

Preliminary

1. The Air Navigation Directions, 1936 (A.N.D. 13), as amended by the Air Navigation Directions, 1936 (A.N.D. 13A), the Air Navigation Regulations, 1937, the Air Navigation (No. 2) Regulations, 1937, the Air Navigation Regulations, 1938, the Air Navigation (No. 2) Regulations, 1938, the Air Navigation (No. 3) Regulations, 1938, the Air Navigation Regulations, 1939, the Air Navigation Regulations, 1940, the Air Navigation Regulations, 1941, the Air Navigation (No. 2) Regulations, 1941, the Air Navigation Regulations, 1943, the Air Navigation Regulations, 1946 and the Air Navigation Regulations, 1948(b), are hereby revoked save in so far as any of the said Directions or Regulations are continued in force for the purposes of Section XX of these Regulations by Regulation 235 in that Section.

SECTION I
INTERPRETATION

2. In these Regulations, unless the context otherwise requires—

"Aerial work aircraft" means an aircraft, not being a public transport aircraft, which is being flown for payment required to be made to the operator of the aircraft, being a payment for the flight or in respect of the purpose for which the flight is carried out, and any reference to an aerial work aircraft of any class shall be construed accordingly;

"Aerodrome" means any area of land or water designed, equipped, set apart or commonly used for affording facilities for the landing and departure of aircraft;

"Aeroplane" means a flying machine supported in flight by fixed wings;

"Aircraft" includes all balloons (whether captive or free), kites, gliders, airships and flying machines;

"Airship" means an aircraft using gas lighter than air as a means of support, and having means of propulsion and means of directional control;

"Approved" means approved by the Minister, or, in relation to such of his administrative functions as are delegated to the Air Registration Board, approved by the said Board;

"Balloon" means an aircraft using gas lighter than air as a means of support and having no means of propulsion, and in relation thereto the expression "captive" refers to a balloon moored to or towed from the ground or water and the expression "free" refers to a balloon floating freely in the air;

"Certificate of airworthiness" includes any flight manual issued and required to be carried with the certificate under the law of the country in which the certificate is issued;

"Certificate of safety" has the meaning assigned to it by Article 15 of the Order;

"Certified point" in relation to gliders, means a point in respect of which there is in force a certificate of approval issued by the Minister;

"Class" in relation to aircraft means class in accordance with the table of general classification of aircraft contained in Schedule V to the Order;

(a) S.I. 1949 No. 349, p. 165 above. (b) S.I. 1948 (No. 1404) I, p. 158.

" Flying machine " means an aircraft heavier than air and having means of mechanical propulsion ;

" Glider " means an aircraft heavier than air, not fixed to the ground and having no means of mechanical propulsion, but having means of directional control ;

" Goods " includes mails and animals ;

" Government aerodrome " means an aerodrome under the control of the Minister or the Minister of Supply and a naval, military or air force aerodrome, and " controlling authority " in relation thereto means, as the case may be, the Minister or the Minister of Supply, or in the case of a naval, military or air force aerodrome, the Admiralty or the Secretary of State, or the officer in command whereof ;

" His Majesty's air forces " includes any branch of His Majesty's naval or military forces performing air service ;

" Kite " means a non-mechanically driven aircraft, heavier than air, moored to or towed from the ground or water ;

" Land " and " landing " in relation to aircraft include alighting on water ;

" Licensed aerodrome " means an aerodrome licensed under the Order ;

" Military aircraft " includes naval, military and air force aircraft, and every aircraft commanded by a person in naval, military or air force service detailed for the purpose shall be deemed to be a military aircraft ;

" The Minister " and " the Ministry " mean the Minister of Civil Aviation and the Ministry of Civil Aviation respectively ;

" Nautical mile " means a distance of 6080 feet ;

" Night " means, except as specified below, the hours of darkness between sunset and sunrise, or such other period between sunset and sunrise as may be prescribed by the appropriate authority, and, in the United Kingdom means, as respects the period of summer time, the time between one hour after sunset and one hour before sunrise and, as respects the remainder of the year, the time between half an hour after sunset and half an hour before sunrise :

Provided that it shall be deemed to be night when, between the hours of sunset and sunrise, any unlighted aircraft or other unlighted prominent object cannot clearly be seen at a distance of at least 5,000 yards.

In respect, however, of the requirements in Sections XIII and XIV, relating to the carrying out of practical flying tests and the production of evidence as to flying experience, " night " means the period commencing at the end of evening nautical twilight and terminating at the beginning of morning nautical twilight ;

" Operating crew " in relation to an aircraft includes pilots, flight navigators, flight engineers and flight radio operators ;

" Person in command " in relation to an aircraft means, in a case where a person other than the pilot in charge is in command, that person, and in any other case, the pilot in charge ;

" Personnel " in relation to an aircraft includes the operating crew and other persons having any duties to perform in the aircraft ;

" Private aircraft " means any aircraft other than a public transport or aerial work aircraft, and any reference to a private aircraft of any class shall be construed accordingly ;

"Privilege" means a right conferred by a licence entitling the holder of the licence to perform any function to which the licence relates;

"Prototype aircraft" means an aircraft in respect of which an application has been made for a certificate of airworthiness and the design of which, in whole or in part, has not previously been investigated in connection with any such application;

"Public transport aircraft" means:—

(*a*) an aircraft carrying passengers or goods for hire or reward;

(*b*) every aircraft comprised in a combination of aircraft where an aircraft is towing other aircraft, if any such aircraft, either towing or being towed, is carrying passengers or goods for hire or reward;

(*c*) in a case where carriage of passengers or goods is effected by an air transport undertaking—

(i) the aircraft carrying the passengers or goods, or

(ii) if the passengers or goods are carried in any aircraft comprised in such a combination as aforesaid, every aircraft, either towing or being towed, comprised therein,

whether such carriage is for hire or reward or not, save in a case where every passenger carried is a person in control or in the employment of the undertaking and any goods carried consist entirely of articles belonging to the undertaking;

and any reference to a public transport aircraft of any class shall be construed accordingly;

"Radio" is to be interpreted as a general term applied to the use of electromagnetic waves of frequencies between ten kilocycles a second and three million megacycles a second;

"Radio apparatus" includes all apparatus, including any ancillary equipment, for sending or receiving by means of radio;

"Scheduled journey" has the meaning assigned to it by subsection (2) of Section 23 of the Civil Aviation Act, 1946(**a**), and does not include a journey made for any of the purposes specified in subsection (3) of that Section;

"Second pilot" means a pilot duly licensed under the provisions of the Order and performing piloting duties under the direction of the pilot in charge of the aircraft;

"Series aircraft" means an aircraft in respect of which an application has been made for a certificate of airworthiness and the design of which is similar in every respect to the design of a prototype aircraft in respect of which a certificate of airworthiness has previously been issued;

"The Board" means the Air Registration Board, a body incorporated on the 26th February, 1937, to which certain functions have been delegated and entrusted in pursuance of Section 2 of the Air Navigation Act, 1936(**b**);

"The Order" means the Air Navigation Order, 1949(**c**);

"Type" in relation to aircraft or engines means any design which in the opinion of the Minister constitutes a type.

3. In these Regulations references to:—

Passengers carried "for hire or reward" do not include references to any person when being carried within the United Kingdom in an aircraft

(a) 9 & 10 Geo. 6. c. 70. (b) 26 Geo. 5 & 1 Edw. 8. c. 44.
(c) S.I. 1949 No. 349, p. 165 above.

owned by a member of any of His Majesty's Forces or Civil Service where no payment is made to the owner in respect of such carriage otherwise than by way of an allowance payable under Regulations applicable to him as such member, but include references to persons carried in aircraft for the purposes of instruction in flying for which payment is made except when the aircraft is a glider belonging to or being flown under arrangements made by a gliding club of which both the person giving and the person receiving the instruction are members;

"The United Kingdom" include references to the territorial waters adjacent to the United Kingdom.

4. Other expressions in these Regulations have the same respective meanings as in the Order.

SECTION II

REGISTRATION OF AIRCRAFT

5. With reference to Article 3 of the Order, application for the registration of an aircraft in the United Kingdom should be made to the Secretary, Ministry of Civil Aviation, London, W.C.2, on a form which will be supplied by him on request.

6. The register of aircraft registered in the United Kingdom shall be kept so as to show in relation to each aircraft registered in that register, in addition to the registered owner, the following particulars:—

(*a*) the number of the certificate of registration;
(*b*) the nationality and registration marks;
(*c*) the make of the aircraft;
(*d*) the serial number of the aircraft;
(*e*) the address of the registered owner;
(*f*) the date on which the entry was made in the register.

SECTION III

CERTIFICATES OF AIRWORTHINESS AND VALIDATIONS

General

7. With reference to Article 11 (8) of the Order, application for the issue or renewal or for a validation or for the renewal of a validation of a certificate of airworthiness should be made to the Secretary, Ministry of Civil Aviation, London, W.C.2, on a form which will be supplied by him on request.

8. In this Section, unless the context otherwise requires—

Reference to an aircraft shall be construed as including its engines, components, accessories, instruments, equipment and apparatus, and their installations.

Classification of aircraft

9. With reference to Article 11 (7) of the Order, on the issue of a certificate of airworthiness or a validation of such a certificate the aircraft to which the certificate or validation relates will be classified in accordance with the scheme of classification specified in Regulation 10, and the certificate or validation, as the case may be, will be endorsed accordingly.

10.—(1) Every flying machine or glider will be classified as belonging to one or more of the following categories and to one or more of the following sub-divisions:—

(i) Normal Category—
Sub-division (*a*); public transport for passengers.
Sub-division (*b*); public transport for mails.
Sub-division (*c*); public transport for goods.
Sub-division (*d*); private.
Sub-division (*e*); aerial work.
Sub-division (*h*); demonstration.
Sub-division (*i*); crew familiarisation.

(ii) Semi-Aerobatic Category—
Sub-divisions (*a*) to (*e*) and (*h*) and (*i*) as in the Normal Category.

(iii) Aerobatic Category—
Sub-divisions (*a*) to (*e*) and (*h*) and (*i*) as in the Normal Category.

(iv) Special Category—
Sub-division (*f*); racing or record.
Sub-division (*g*); research or experimental.
Sub-divisions (*h*) and (*i*) as in the Normal Category.

(2) Every airship or balloon will be similarly classified as belonging to one or more of the foregoing categories and to one or more of the foregoing sub-divisions in so far as such categories and sub-divisions are appropriate to an airship or a balloon.

(3) (*a*) The categories and sub-divisions proposed for an aircraft should be stated on the form of application for the issue of a certificate of airworthiness or a validation. Where it is desired to have the aircraft classified in sub-division (*e*), (*f*), (*g*), (*h*) or (*i*) the application should also indicate the particular purposes for which it is proposed to use the aircraft.

(*b*) An application for the re-classification of an aircraft should be made in writing and forwarded to the Board. The aircraft may be re-classified if the aircraft conforms to the requirements applicable to the proposed re-classification.

Restrictions on use of aircraft according to classification

11. An aircraft registered in the United Kingdom and being flown in accordance with a certificate of airworthiness or a validation of such a certificate issued under the Order may be used only in such manner and for such purposes as may be specified in that certificate of airworthiness or validation in accordance with the category and sub-divisions thereof in which the aircraft is classified.

Special provisions as to experimental or test flights, etc.

12. With reference to Article 2 and paragraph (2) (*b*) of Article 10 of the Order, the conditions subject to which an unregistered aircraft or an aircraft registered in the United Kingdom may be permitted to fly within the United Kingdom without a certificate of airworthiness being in force in respect thereof are as set out hereunder:—

(*a*) the flight shall not contravene any of the provisions of the Order; and
(*b*) either the "A Conditions" or the "B Conditions" specified below shall be complied with.

(Alternatively, a flight may be carried out in accordance with such conditions or limitations as may be specified in a special permission in writing given by the Minister for the purpose.)

A Conditions

(i) An application for the issue or renewal of a certificate of airworthiness in respect of the aircraft or of a validation of such a certificate or an application for the approval of modifications under Regulation 40 shall have been made prior to the flight.

(ii) The aircraft shall be either a series aircraft or an aircraft in respect of which a certificate of airworthiness or a validation of such a certificate has already been issued under the provisions of the Order.

(iii) The flight shall be carried out only for the purpose of either qualifying for the issue or renewal of a certificate of airworthiness or a validation of such a certificate or obtaining the approval of modifications.

(iv) the flight shall take place wholly within ten nautical miles of the place of departure which shall be a licensed aerodrome, a Government aerodrome or an aerodrome used in connection with an aircraft factory.

(v) The aircraft shall not fly over any town or populous area, over any assembly of persons in the open air, or over any aerodrome where at the time conditions are such as to make the flying of the aircraft dangerous.

(vi) The flight shall not have been forbidden by the Minister.

B Conditions

(i) The flight shall be carried out under the control of a person or firm approved in writing for the purpose of these B Conditions and subject to any conditions or limitations attached to such approval.

(ii) The flight shall be carried out only for the purpose of qualifying for the issue or renewal of a certificate of airworthiness or of a validation of such a certificate, or for the purpose of obtaining the approval of modifications under Regulation 40, or for the purpose of or in connection with any other experiment or test.

(iii) The aircraft shall, if registered, be marked in accordance with the provisions of Article 8 of the Order, and, if unregistered, be marked in a manner approved for the purpose of these B Conditions.

(iv) The aircraft shall not fly over any town or populous area, over any assembly of persons in the open air, or over any aerodrome where at the time conditions are such as to make the flying of the aircraft dangerous.

SECTION IV

WEIGHING OF AIRCRAFT CERTIFIED AS AIRWORTHY

13. With reference to Article 13 and Article 39 of the Order the following provisions shall apply to every flying machine or glider registered in the United Kingdom in respect of which a certificate of airworthiness issued or rendered valid under the Order is or has been in force.

14. The aircraft shall, under arrangements to be made by the operator thereof, be weighed at such times as the Minister may require and to his satisfaction.

15. The aircraft shall carry, exhibited in a prominent position inside it, a weight schedule giving the following information:—

(*a*) The nationality and registration marks of the aircraft.

(*b*) The weight of the aircraft empty, which weight shall include (i) the weight of the liquid in the system if the aircraft is fitted with liquid-cooled engines and (ii) the weight of all accessories, instruments, equipment and apparatus (including radio apparatus) and other parts which in the opinion of the Minister should be regarded as fixed and irremovable.

(*c*) A list of the accessories, instruments, equipment and apparatus (including radio apparatus) and other parts which in the opinion of the Minister should be regarded as fixed and irremovable, which have been included in the weight of the aircraft empty.

(*d*) A list of the accessories, instruments, equipment and apparatus and other parts (excluding radio apparatus and radio parts) which in the opinion of the Minister should be regarded as not fixed but removable, together with details of their respective weights.

(*e*) A list of the radio apparatus and radio parts which in the opinion of the Minister should be regarded as removable, together with details of their respective weights.

16. The aircraft shall also bear clearly painted upon the outside in a prominent position:—

(*a*) its weight empty (i.e. the weight referred to at (*b*) in Regulation 15); and

(*b*) the maximum total weight authorised for the aircraft as shown for the time being in its certificate of airworthiness.

17. Whenever any alteration affecting the particulars or weights entered in the weight schedule is made, the weight schedule carried in the aircraft in accordance with Regulation 15 shall be amended or replaced by a revised schedule.

18. Whenever the aircraft is weighed in accordance with Regulation 14, the fixed accessories, instruments, equipment, apparatus and parts shall be checked against the particulars entered in the weight schedule referred to in Regulation 15.

SECTION V

INSTRUMENTS, EQUIPMENT AND SAFETY DEVICES, FOR AIRCRAFT

19. With reference to Article 30 of the Order, the instruments and equipment to be carried and maintained in a fit condition for immediate use in aircraft registered in the United Kingdom, when flying or about to fly and the devices to be used and the precautionary measures to be taken therein for the purpose of securing the safety of the aircraft are as specified in this Section.

20.—(1) The instruments and equipment specified in this Section shall be of approved types and shall be installed or stowed in the aircraft in a manner approved for the purpose of securing their satisfactory functioning, except that the following may be of any type suitable for the purpose and may be installed or carried in any manner which will ensure that they can be used effectively as and when required:—

Maps and charts.
The navigational instruments referred to in paragraph (8) (*b*) of Regulation 24.
The apparatus referred to in paragraph (3) (*b*) of Regulation 24.
Timepieces.
Chart tables.
First aid kits.
Sea anchors.
Torches.

(2) In the case of aircraft carrying passengers for hire or reward, first aid kits shall contain equipment suitable for rendering first aid in any accident that may occur and sufficient for the purpose having regard to the number of persons on board the aircraft, and shall include the following items:—

Materials: Bandages, splints, antiseptic gauze, adhesive plaster, lint, cotton-wool, safety-pins.

Instruments: Tourniquet or haemostatic bandage, scissors, forceps.

Drugs: Water-miscible antiseptic, analgesic, narcotic (if morphine or other drug to which Part III of the Dangerous Drugs Act, 1920(a), applies, is carried the quantity shall be on the basis of not more than ¼ grain per person and in the form of ampoule syringes), stimulant, remedy for burns.

21. For the purposes of paragraph (1) of Regulation 20, instruments and equipment shall be deemed to be of an approved type if they are of a type which has been certified by the Board or by any person authorised for the purpose by the Board as complying with a particular specification which is for the time being approved by the Board.

22. The instruments, equipment, devices and precautionary measures referred to in Regulation 19 are as set out in this Regulation and Regulations 23 to 29 in the cases therein indicated.

All Flying Machines

In flying machines for all flights

(*a*) The instruments, equipment and devices required for the issue of a certificate of airworthiness in respect of the particular aircraft;

(*b*) if radio communication apparatus is not carried, equipment for making as necessary the pyrotechnical signal of distress specified in Rule 62 in Schedule II to the Order and the pyrotechnical signal specified in Rule 41 (3) in that Schedule.

(*c*) Maps or charts to cover the whole route of the proposed flight and any route to which the pilot in charge of the flying machine may reasonably expect to be diverted. Information to which the pilot in charge may need to refer in flight in order to comply with the Rules of the Air and Air Traffic Control in Schedule II to the Order;

(*d*) first aid kit.

23. The items specified in this Regulation and in Regulation 24 shall, in so far as they may not be included in the requirements specified in Regulation 22, also be carried by flying machines in the cases indicated in this Regulation or in Regulation 24, whichever may be applicable.

(1) *In flying machines for flights by night*

(*a*) Equipment for displaying as required by Rule 20 (1) in Schedule II to the Order, the navigation lights described in Rule 66 in that Schedule;

(*b*) equipment for making the visual signal specified in Rule 41 (3) in Schedule II to the Order;

(*c*) adequate electrical illumination, supplied from the main source of supply in the aircraft, for the instruments and equipment (including maps) the carriage of which is prescribed and the illumination of which is necessary to enable use to be made of them during flight, and, with respect to the electrical circuits to be used, 25 per cent. spare fuses or 3 spare fuses of each rating, whichever is the greater;

(*d*) the equipment specified in paragraph (4) (*a*), (*b*) and (*c*) of this Regulation.

(a) 10 & 11 Geo. 5. c. 46.

(2) *In flying machines for flights involving aerobatic manoeuvres*

(*a*) Safety harness for every seat in use.

(3) *In flying machines designed to manoeuvre on the water*

(*a*) As necessary to comply with Rule 19 in Schedule II to the Order, the equipment for making the sound signals specified in that paragraph;

(*b*) as necessary to comply with Rule 19 in Schedule II to the Order, the equipment for displaying the lights described in Rule 67 of that Schedule.

(4) *For flights made under Instrument Flight Rules in Control Zones and Control Areas*

(*a*) A gyroscopic rate of turn indicator combined with a lateral acceleration indicator (i.e., a turn and bank indicator or equivalent device);

(*b*) gyroscopic bank and pitch indicator;

(*c*) gyroscopic direction indicator;

(*d*) two sensitive altimeters adjustable for changes in barometric pressure, one of which may be the altimeter required to meet the requirements for the issue of a certificate of airworthiness: Provided that, until 1st October, 1949, one sensitive altimeter only need be carried;

(*e*) timepiece with a centre seconds' hand;

(*f*) pitot head for the airspeed indicator protected by electrical heating or otherwise against failure to operate in ice-forming conditions;

(*g*) means of indicating that the power supply to the gyroscopic instruments is working satisfactorily;

(*h*) rate of climb and descent indicator;

(*i*) means of indicating the outside air temperature;

(*j*) in aircraft of which the maximum total weight authorised exceeds 10,000 lb., two air speed indicators;

(*k*) approach chart for each aerodrome designated in the flight plan.

PUBLIC TRANSPORT FLYING MACHINES

24.—(1) *For all flights*

(*a*) Safety harness for every pilot's seat in use (or in the case of an aircraft conforming to a prototype certified as airworthy prior to the date of coming into operation of these Regulations, a safety belt for every pilot's seat in use);

(*b*) means of indicating to the passengers when their safety belts or safety harnesses should be fastened;

(*c*) gyroscopic rate-of-turn indicator or a gyroscopic direction indicator;

(*d*) gyroscopic bank indicator or lateral acceleration indicator;

(*e*) sensitive altimeter adjustable for changes in barometric pressure, unless the altimeter required for the issue of the certificate of airworthiness meets this condition;

(*f*) timepiece with a centre seconds' hand;

(*g*) such other instruments, equipment and supplies as the Minister may, at his discretion, require to be carried in the particular circumstances of the case.

(2) *For all flights which involve manoeuvres on the water*

(*a*) Lifebelt, or equivalent, equipped with a light and whistle for each person on board and stowed in a position easily accessible from the person's seat;

(*b*) notices displayed in each passenger compartment stating where the lifebelts are situated and instructing passengers how to use them in the event of their being required;

(*c*) additional flotation equipment, of not less than 20 per cent. of the capacity of the equipment required under (*a*) above, shall be provided in a stowage accessible from outside the aircraft;

(*d*) equipment of marine type for making, from the surface of the water, the pyrotechnical signal of distress specified in Rule 62 in Schedule II to the Order;

(*e*) as necessary, anchor and equipment for mooring appropriate to the maximum total weight authorised for the aircraft.

(3) *For flights which involve manoeuvres on the water by flying machines of which the maximum total weight authorised exceeds* 5,000 *lb.*

(*a*) Sea anchor;

(*b*) apparatus, as necessary, to facilitate manoeuvring the aircraft under its own engine power on the water as appropriate to its weight, size and handling characteristics, and, where such apparatus is not controlled by the pilot, a communication system enabling him to instruct the operator thereof as may be necessary.

(4) *For flights over water beyond gliding distance from any coast* (*or shore*)

(*a*) The equipment and notices specified at (*a*) and (*b*) respectively in paragraph (2) of this Regulation;

(*b*) equipment necessary for making the pyrotechnical signal of distress and the green light urgency signals specified in Rules 62 and 63 respectively in Schedule II to the Order.

(5) *For flights by aeroplanes over water, the following equipment* (*when required under paragraphs* (2) *and* (3) *of Regulation* 36 *in Section VI of these Regulations to be carried*)

(i) Suitably equipped dinghies of an approved type sufficient to accommodate all occupants of the aeroplane. Each dinghy shall carry the following equipment:—

(*a*) means for maintaining buoyancy;

(*b*) a drogue to reduce drift;

(*c*) life lines and means of attaching one raft to another;

(*d*) paddles or other means of propulsion;

(*e*) equipment to protect the occupants from the elements;

(*f*) a waterproof torch;

(*g*) marine type pyrotechnical distress signals;

(*h*) means of making sea water drinkable;

(*i*) sufficient food and water to sustain the occupants of the dinghy for twenty-four hours;

(*j*) first aid equipment.

The items (*a*), (*b*), (*c*), (*d*) and (*e*) referred to above shall be of a type approved for operation in the type of dinghy in which they are installed. The remaining items do not require approval.

Routine maintenance and inspection of dinghies and dinghy equipment shall be carried out to ensure that they are maintained in a serviceable condition.

(ii) The method of stowage of dinghies required by (i) above and the method of launching shall be such as to ensure the most expeditious and efficient use of them in the event of a forced landing of the aeroplane.

(iii) The equipment specified in (i) (*f*) to (*j*) shall be contained in a pack and one such pack shall be stowed with each dinghy so that it is immediately available when the dinghy is launched.

(iv) For every four or proportion of four dinghies, one dinghy radio transmitter shall be carried in the aeroplane in the position in which it would be most readily available for use in an emergency. The radio transmitter shall be of an approved type and the method of stowage in the aeroplane and subsequent operation in the dinghy shall also be approved.

(v) In the case of flights over water by flying machines other than aeroplanes, such items of equipment shall be carried as the Minister may require. (Particulars of these requirements may be obtained from the Secretary, Ministry of Civil Aviation, London, W.C.2.)

(6) *For flights by night*

(*a*) As from the first day of October, 1949, landing lights consisting of two single-filament lamps or one dual-filament lamp with separately energised filaments;

(*b*) cabin lights in all passenger compartments;

(*c*) torch for each member of the aircraft personnel.

(7) *For flights in the course of which a height of* 10,000 *feet or more above sea level is likely to be reached*

(*a*) A supply of oxygen together with suitable apparatus for the use thereof by the personnel of the aircraft and a separate supply together with suitable apparatus for the use thereof by passengers, if carried, such supply and apparatus being in the latter case under the control of a member of the operating crew:

Provided that, where the air space in the control compartment and passenger compartments, if any, is kept at a pressure greater than that of the international standard atmosphere at 10,000 feet, such oxygen only as would be necessary for the personnel of the aircraft as an emergency measure in the event of pressure failure, need be provided.

(*b*) When a supply of oxygen must be carried, means of indicating to the passengers in each passenger compartment at appropriate times when oxygen should be used, and method of use.

(8) *For flights on which a licensed flight navigator is required to be on board*

(*a*) Chart table;

(*b*) such navigational instruments as are necessary for the particular flight;

(*c*) adequate facilities for the taking of astronomical observations, including observations for checking the magnetic compass.

(9) *For flights when the weather reports available at the time of departure indicate the probability that conditions predisposing to ice formation will be encountered*

(*a*) Means of preventing the formation of or means of removing such ice on the wings, tail surfaces and control surfaces as would seriously alter the aerodynamic characteristics of the aircraft or interfere with the proper functioning of its flying controls;

(*b*) means of preventing the formation of or means of removing such ice on the propellers as would seriously alter their aerodynamic characteristics and, in the case of a variable-pitch propeller, would interfere with its pitch-changing mechanism;

(*c*) means of protecting any fixed aerial to ensure that ice accretion will not interfere with the electrical insulation;

(*d*) if a non-retractable direction-finding loop is fitted, means of preventing ice accretion thereon;

(*e*) such safeguards, whether by heating or otherwise, as are necessary to ensure that all instruments and equipment required for use during the flight of the aircraft will continue to function under icing conditions;

(*f*) means of preventing the formation of or means of removing ice on such portion of the pilot's windscreen as is necessary to provide an adequate view.

(10) *For flights on which passengers are carried*

The pilot in charge of the flying machine, or other member of the crew to whom the responsibility has been delegated by the operator of the flying machine shall—

(*a*) before the commencement of a flight, take reasonable steps to ensure that all safety belts and safety harnesses have been correctly fastened and that the passengers have been made aware of their method of operation;

(*b*) before each landing of the flying machine, take reasonable steps to ensure that all safety belts and safety harnesses have been correctly fastened; and

(*c*) when conditions of turbulent air prevail and if he considers such a precaution necessary, take reasonable steps to ensure that all safety belts and safety harnesses have been correctly fastened.

All Gliders

25. *In gliders for all flights*

The instruments, equipment and devices required for the issue of a certificate or airworthiness in respect of the particular glider.

26. The items specified in this paragraph shall, in so far as they may not be included in the requirements specified in Regulation 25, also be carried by gliders in the cases respectively indicated.

(1) *In gliders for flights by night*

(*a*) Equipment for displaying, as required by Rule 20 (1) in Schedule II to the Order, the navigation lights described in Rule 68 in that Schedule;

(*b*) adequate electrical illumination, supplied from the main source of supply in the glider, for the instruments and equipment (including maps) the carriage of which is prescribed and the illumination of which is necessary to enable use to be made of them during flight.

(2) *In gliders for flights involving aerobatic manoeuvres*
Safety harness for every seat in use.

(3) *In public transport and aerial work gliders*

Such instruments and equipment as the Minister may, at his discretion, require to be carried in the particular case.

Free Balloons

27.—(1) *For all flights*

(*a*) Equipment necessary for making the pyrotechnical signal of distress specified in Rule 62 in Schedule II to the Order;

(*b*) such other instruments and equipment as the Minister may, at his discretion, require to be carried in the particular case.

(2) *In addition for flights by night*

Equipment for displaying, as required by Rule 20 (1) in Schedule II to the Order, the navigation lights described in Rule 69 in that Schedule.

Captive Balloons

28. *For all flights*

(*a*) Such instruments and equipment as the Minister may, at his discretion, require to be carried in the particular case;

(*b*) equipment for displaying the lights and markings specified in Section XVI of these Regulations.

Duplication of Certain Instruments

29. If any instrument, indicator or gauge required under this Section to be provided and fitted in an aircraft is not, in the opinion of the Minister, conveniently visible for the performance of his duties to any member of the operating crew from his ordinary place of duty, a further such instrument, indicator or gauge, so disposed as to be conveniently visible to him, shall be provided and fitted in the aircraft.

SECTION VI

CERTIFICATES OF SAFETY AND SAFETY PRECAUTIONS TO BE OBSERVED FOR FLIGHTS

Certificates of safety

30.—(1) With reference to Article 15 of the Order, the operator of a public transport aircraft registered in the United Kingdom shall obtain the approval in writing of the Board to maintenance schedules in respect of the aircraft and shall incorporate therein any amendments which may from time to time be required by the Board.

(2) The following provisions shall apply to the maintenance and inspection of any such aircraft carried out in connection with the issue of a certificate of safety:—

(*a*) Prior to the issue of a certificate of safety the operator of the aircraft shall furnish such information as may be necessary to enable the aircraft maintenance engineers who are to sign the certificate to be satisfied that up to the date of issue of such certificate all maintenance and inspection required to be carried out in accordance with the approved maintenance schedules for the aircraft have been so carried out;

(*b*) The aircraft (including its prescribed instruments and equipment but excluding its engines and engine installation and all instruments relating thereto) shall, subject to the provisions of sub-paragraph (*d*) of this paragraph, be certified in the form and manner shown in Regulation 31 by the holder of an aircraft maintenance engineer's licence in Category A in respect of such aircraft;

(*c*) In the case of a flying machine or an airship, the engines and engine installations and the prescribed instruments relating thereto shall, subject to the provisions of sub-paragraph (*d*) of this paragraph, be certified in the form and manner shown in Regulation 31 by the holder of an aircraft maintenance engineer's licence in Category C in respect of such engines;

(*d*) The aircraft and engines may be certified by the same aircraft maintenance engineer if he is the holder of an aircraft maintenance engineer's licence both in Category A and Category C in respect of such aircraft and engines:

Provided that the magnetic compasses may be adjusted and compensated by the holder of an airline transport pilot's licence, a senior commercial pilot's licence or a flight navigator's licence, who shall certify to that effect on the deviation cards. In such case the next subsequent certificate of safety issued may be altered by inserting after the word "equipment" the words "other than magnetic compasses". Such alteration to a certificate of safety shall be initialled by the aircraft maintenance engineer who issues the certificate.

31. The certificate of safety issued in accordance with the provisions of Article 15 of the Order shall, according to the class of the aircraft concerned, be in one of the following forms, or in such other form as may be approved as suitable for the purpose:—

(1) In the case of a flying machine or an airship:—

CERTIFICATE OF SAFETY*

Flying Machine Type or Airship Type .....

Nationality and Registration Marks .....

I hereby certify that I am satisfied that the above aircraft (including its prescribed instruments and equipment, but excluding the engines and engine installations and all instruments relating thereto) is safe in every way for flight, provided that the conditions of loading specified in the certificate of airworthiness are complied with, and I hereby certify that all maintenance and inspection in accordance with the approved maintenance schedules have been carried out and that adjust-

ments and rectifications found necessary have been made and inspected to my satisfaction.

Signed .....

Aircraft Maintenance Engineer : Licence No. .....

Time of Issue .....

Dated at ..... this ..... day of ..... 19.....

I hereby certify that I am satisfied that the engines and engine installations (including the prescribed instruments relating thereto) of the above aircraft are safe in every way for flight, and I hereby certify that all maintenance and inspection in accordance with the approved maintenance schedules have been carried out and that adjustments and rectifications found necessary have been made and inspected to my satisfaction.

Signed .....

Aircraft Maintenance Engineer : Licence No. .....

Time of Issue .....

Dated at ..... this ..... day of ..... 19.....

* NOTE : This certificate includes the attachment of the radio apparatus to the aircraft structure, and the condition of the earth system of the aircraft, including the bonding and screening to ensure suppression of high frequency electrical interference. It does not include the radio apparatus.

(2) In the case of a free balloon:—

CERTIFICATE OF SAFETY*

Free Balloon Type .....

Nationality and Registration Marks .....

I hereby certify that I am satisfied that the above aircraft (including its prescribed instruments and equipment) is safe in every way for flight, provided that the conditions of loading specified in the certificate of airworthiness are complied with, and I hereby certify that all maintenance and inspection in accordance with the approved maintenance schedules have been carried out and that adjustments and rectifications found necessary have been made and inspected to my satisfaction.

Signed .....

Aircraft Maintenance Engineer : Licence No. .....

Time of issue .....

Dated at ..... this ..... day of ..... 19.....

* NOTE : This certificate includes the attachment of the radio apparatus to the aircraft structure, and the condition of the earth system of the aircraft, including the bonding and screening to ensure suppression of high frequency electrical interference. It does not include the radio apparatus.

(3) In the case of a captive balloon:—

CERTIFICATE OF SAFETY*

Captive Balloon Type .....

Nationality and Registration Marks .....

I hereby certify that I am satisfied that the above aircraft (including its prescribed instruments and equipment and also the winch and cable by which it is operated) is safe in every way for flight, provided that the conditions of loading specified in the certificate of airworthiness are complied with, and I hereby certify that all maintenance and inspection in accordance with the approved maintenance schedules have been carried out and that adjustments and rectifications found necessary have been made and inspected to my satisfaction.

Signed .....

Aircraft Maintenance Engineer: Licence No. .....

Time of issue .....

Dated at ..... this ..... day of ..... 19.....

* NOTE: This certificate includes the attachment of the radio apparatus to the aircraft structure, and the condition of the earth system of the aircraft, including the bonding and screening to ensure suppression of high frequency electrical interference. It does not include the radio apparatus.

(4) In the case of a glider:—

CERTIFICATE OF SAFETY*

Glider type .....

Nationality and Registration Marks .....

I hereby certify that I am satisfied that the above aircraft (including its prescribed instruments and equipment and also its towing gear) is safe in every way for flight, provided that the conditions of loading specified in the certificate of airworthiness are complied with, and I hereby certify that all maintenance and inspection in accordance with the approved maintenance schedules have been carried out and that adjustments and rectifications found necessary have been made and inspected to my satisfaction.

Signed .....

Aircraft Maintenance Engineer: Licence No. .....

Time of issue .....

Dated at ..... this ..... day of ..... 19.....

* NOTE: This certificate includes the attachment of the radio apparatus to the aircraft structure, and the condition of the earth system of the aircraft, including the bonding and screening to ensure suppression of high frequency electrical interference. It does not include the radio apparatus.

32. Every certificate of safety required by Article 15 of the Order shall be prepared in ink or indelible pencil.

Requirements as to weight and performance of public transport or aerial work aeroplanes

33. With reference to Article 16 of the Order, the requirements specified in Regulation 34 shall apply to public transport or aerial work aeroplanes registered in the United Kingdom, except public transport aeroplanes which are being used solely for the purpose of training any persons carried therein, in addition to the personnel thereof, to perform duties in an aeroplane.

34. Subject to the exception in Regulation 33, a public transport or aerial work aeroplane shall not fly or attempt to fly unless :—

(1) the weight of the aeroplane immediately before the commencement of the proposed flight is such that one of the following conditions is complied with :—

(*a*) the wing loading of the aeroplane does not exceed 20 lb. per square foot ; or

(*b*) the stalling speed of the aeroplane in the landing configuration does not exceed 60 knots ; or

(*c*) the aeroplane, with any one of its engines inoperative and the remaining engines developing maximum continuous power, has a positive rate of climb at an altitude of 5,000 ft. above sea level in conditions of standard atmosphere ;

(2) the person in command of the aeroplane has satisfied himself that the distance estimated to be required for the take-off under the meteorological conditions prevailing at that time does not exceed the length of the landing strip to be used or the extent of the landing area measured in the direction in which the take-off will be made and that the aeroplane will be able to clear by a safe margin all obstructions in the flight path which the aeroplane will follow immediately after take-off ;

(3) having regard to the best information available to him at the time of the start of the proposed flight as to the meteorological conditions likely to prevail at the aerodrome of destination when the aeroplane arrives there, the person in command of the aeroplane has satisfied himself that the aeroplane will be able, when landing, to clear by a safe margin all obstructions in the vicinity of the aerodrome of destination and that the distance estimated to be required for the landing, under those conditions, does not exceed 70 per cent. of the length of the appropriate landing strip or the extent of the landing area measured in the direction in which the landing is expected to be made: Provided that when a visual approach and landing is expected to be made such estimated distance may be increased to 80 per cent. of the length of the landing strip or the extent of the landing area ; and

(4) the person in command of the aeroplane has satisfied himself that, in the event of the engine or any one of the engines becoming inoperative at any stage of the proposed flight subsequent to the take-off and initial climb :—

(a) *in the case of an aeroplane unable to comply with condition* (*c*) *in paragraph* (1) *of this Regulation*—

The aeroplane could, having regard to the nature of the route of the proposed flight and to the meteorological conditions forecast as likely to prevail along the route, be flown at such heights as would enable the person in command to have sufficient time to select a safe landing place and make a landing thereat.

(b) *in the case of an aeroplane unable to comply with one of the conditions (a) or (b) specified in paragraph (1) of this Regulation—*

The weight of the aeroplane does not exceed the weight at which, having regard to the meteorological conditions to be expected on the route of the proposed flight, the aeroplane would be capable of maintaining a safe height until a landing could be made by a safe margin at an aerodrome either along the route (including the aerodrome of departure) or along a divergence from that route planned in advance to provide for such a contingency.

35. The several distances and lengths referred to in paragraphs (2) and (3) of Regulation 34 shall be computed as follows :—

(*a*) the take-off distance shall be measured along the ground (or water) in the direction of take-off from the point at which the aeroplane is to start its run for that purpose to the point above which the aeroplane, after taking off, would attain a height of 50 feet above the ground (or water) and be flying at a safe speed ;

(*b*) the landing distance shall be measured along the ground (or water) in the direction of landing from the point above which the aeroplane when descending in preparation for landing, would be at a height of 50 feet above the ground (or water) and flying at a safe speed, to the point at which, on completion of its landing, it would first come to rest, or, in the case of a seaplane, first be under full control on the water ;

(*c*) the length of the landing strip for take-off shall be that part of the surface of the aerodrome of departure which is available for the purpose and is free from obstructions, measured in the direction in which the take-off is to be made from the point at which the aeroplane is to commence its run for that purpose to the limit of the available aerodrome surface ; and

(*d*) the length of the landing strip for landing shall be that part of the surface of the aerodrome of destination which is available for the purpose and is free from obstructions, measured in the direction in which the landing is expected to be made.

Flights over water

36.—(1) Subject to the provisions of paragraph (2) of this Regulation, a public transport aeroplane shall not carry out or attempt to carry out a flight over water in the course of which the aeroplane may at any time be more than thirty minutes flying distance in still air from the nearest shore (i.e. calculated at the most economical cruising speed of the aeroplane at sea level, according to the best information available) unless the person in command has satisfied himself :—

(*a*) that the weight and performance of the aeroplane is such that the condition specified in paragraph (1) (*c*) of Regulation 34 can be complied with ; and

(*b*) that the quantity of fuel carried by the aeroplane is sufficient to ensure that, in the event of failure of one of its engines during the period of the flight over water, the aeroplane could safely reach the nearest landing ground.

(2) Subject to the provisions of paragraph (3) of this Regulation, a public transport aeroplane in respect of which the requirements specified in paragraph (1) of this Regulation cannot be complied with may nevertheless

carry out or attempt to carry out a flight over water in the circumstances mentioned in that paragraph, provided that the equipment (i.e. dinghies, etc.) specified in paragraph (5) of Regulation 24 is carried in the aeroplane.

(3) A public transport aeroplane shall not carry out or attempt to carry out a flight over water in the course of which the aeroplane may at any time be more than ninety minutes flying distance in still air from the nearest shore (i.e. calculated at the most economical cruising speed of the aeroplane at sea level, according to the best information available) unless :—

(*a*) the person in command has satisfied himself that the requirements specified in paragraph (1) of this Regulation are complied with ; and
(*b*) the equipment (i.e. dinghies, etc.) specified in paragraph (5) of Regulation 24 is carried in the aeroplane.

Load sheets

37. With reference to paragraph (5) of Article 16 of the Order, the requirements specified therein relating to the completion of load sheets shall be complied with in respect of every flight to be made by a public transport aeroplane, except a public transport aeroplane of which the maximum total weight authorised does not exceed 2,500 lb. :

Provided that the said requirements shall not apply in respect of a flight to be made by a public transport aeroplane :—

(*a*) solely for the purpose of training any persons carried therein, in addition to the personnel thereof, to perform duties in an aeroplane ; or
(*b*) as a local pleasure flight of short duration commencing from and finishing at one and the same aerodrome with no intermediate landing.

38.—(1) Every load sheet required in accordance with the provisions of Regulation 37 shall contain :—

(*a*) particulars of the nationality and registration marks of the aeroplane ;
(*b*) sufficient data to enable the particular flight to be readily identified ;
(*c*) particulars of the several weights (e.g. weight empty, removable equipment, fuel and oil, passengers, goods, etc.) from which the total weight of the aeroplane as loaded has been computed ; and
(*d*) a certificate by the person superintending the loading of the aeroplane that the load has been distributed in accordance with the written loading instructions submitted to the Minister and approved by him in respect of the aeroplane.

(2) Except as provided in paragraph (3) of this Regulation, the weight of the crew and passengers of an aeroplane entered in the load sheet shall be computed from the actual weight of each person as ascertained by individual weighings.

(3) In respect of an aeroplane having a total seating capacity of twelve persons or more, the person superintending the loading of the aeroplane may, if so instructed by the person in command of the aeroplane, compute the weight of the crew and passengers to be entered in the load sheet in accordance with the following table of average weights instead of from the actual weight of each person as ascertained by individual weighings :—

For adult males, including crew	165 lb.
For adult females, including crew	143 lb.
For children of either sex, two years of age, or more, but less than twelve years	85 lb.
For infants under two years of age	17 lb.

The person in command of an aeroplane shall, however, have regard to any undue preponderance among the persons to be carried of persons appearing to be above the average weights as set out in the above table, and shall, if he considers it necessary, require the actual weights of such persons to be ascertained by individual weighings.

Whenever the weights of persons entered in a load sheet are average weights computed in accordance with the foregoing table the load sheet shall be endorsed to show that the said method of computation has been used.

SECTION VII

OVERHAULS, REPAIRS, REPLACEMENTS AND MODIFICATIONS TO AIRCRAFT CERTIFIED AS AIRWORTHY

General

39. In this Section, unless the context otherwise requires—

References to an aircraft shall be construed as including its engines, components, accessories, instruments, equipment and apparatus, and their installations.

References to the overhaul, repair, replacement or modification of an aircraft include references to the overhaul, repair, replacement of parts, or modification of its engines, components, accessories, instruments, equipment, or apparatus, or the installation thereof, and in the case of modifications include references to changes in the type of engines, components, accessories, instruments, equipment or apparatus from those previously fitted.

Approval of modifications not previously the subject of investigation

40. With reference to Article 13 of the Order—

(1) The modifications of an aircraft for which approval in writing is required to be obtained are all those modifications which have not been previously so approved and which, in the opinion of the Board, affect the safety of the aircraft:

Provided that if a modification has already been approved in relation to one aircraft of any type it shall not be necessary to obtain approval for the same modification when incorporated in another aircraft of the same type, subject, however, to compliance with the requirements of Regulations 41 and 42.

(2) Application for the approval of modifications under paragraph (1) of this Regulation should be made in writing to the Board.

Requirements relating generally to overhauls, repairs, replacements and approved modifications

41. The following requirements shall apply to overhauls, repairs, replacements and to approved modifications carried out to an aircraft in respect of which a certificate of airworthiness or a validation issued under the provisions of the Order is, or has been, in force:—

(i) The work shall be carried out in all essential respects in accordance with the approved design in conformity with which the aircraft was constructed including such modifications as have been approved for embodiment therein, or, alternatively, shall be undertaken in accordance with a repair scheme approved in writing.

(ii) All materials used shall be as approved for the design in conformity with which the aircraft was constructed, or as otherwise approved.

(iii) All work shall be inspected, to the extent necessary in the circumstances of the case, in accordance with the requirements of the Board.

(iv) A certificate in accordance with the terms of Regulation 42 shall be given, and, if the Board so require, the certificate of airworthiness of the aircraft shall be forwarded forthwith to the Minister in order that it may be amended:

Provided that in emergency if it is not reasonably practicable to comply with the above requirements a temporary repair of the part or parts affected may be made for the sole purpose of enabling the aircraft to proceed to the nearest place at which a repair complying with the above requirements can be carried out, and, if the person in command of the aircraft is satisfied that, having regard to the circumstances and exigencies of the case, such repair is adequate for the purpose, the aircraft may then proceed to fly to such place without having such temporary repair certified in accordance with the foregoing requirements.

Certification of overhauls, repairs, replacements and modifications

42. The following provisions shall apply to or in relation to every certificate required under Regulations 40 and 41 ;

(1) The certificate shall be appended to particulars of the overhaul, repair, replacement or modification to which it relates and shall be in the following form:—

I hereby certify that, in carrying out the { overhaul / repair / replacement / modification } specified above, all the conditions and requirements of the Air Navigation Regulations for the time being in force which are applicable thereto have been complied with.

Signed.....

Date.....

(2) The certificates shall be signed by an aircraft maintenance engineer qualified under the terms and conditions of his licence to certify the overhaul, repair, replacement or modification to which the certificate relates, or by the authorised representative of a firm or company approved for the purpose of giving such certificates or by some other person so approved.

(3) The certificates shall, when relating to the aircraft exclusive of the engines, be written in the aircraft log book ; when relating to the engines, be written in the appropriate engine log book ; and when relating to a variable-pitch propeller, be written in the appropriate propeller log book :

Provided that—

(i) if the details of any overhaul, repair, replacement or modification are so voluminous as to render it inconvenient to enter them in the space provided in the log book, such details shall be entered in a separate maintenance record which shall be numbered for identification purposes, certified in like manner to that required for the relevant entry in the log book and retained in safe custody in order

that it may be produced on such occasions as it may be required for inspection. The number of such record and particulars of the place where it may be inspected shall be inserted in the log book together with a brief description of the overhaul, repair, replacement or modification to which the record relates;

(ii) if the appropriate log book is not at the place where the overhaul, repair, replacement or modification is carried out, the certificate may be given separately from the log book, in which case it shall be posted in the log book as soon as reasonably practicable; and

(iii) in the case of an aircraft in respect of which aircraft or engine log books are not required by the Order to be kept the certificate shall, in either instance, be entered in a suitable book which shall be produced on demand for the inspection of the Minister.

SECTION VIII

LICENSING AND DUTIES OF AIRCRAFT MAINTENANCE ENGINEERS

43. With reference to Article 14 of the Order, application for the grant or renewal of a licence to act in the capacity of aircraft maintenance engineer, or for the extension of a rating included in such a licence, should be made to the Secretary, Air Registration Board, Brettenham House, Lancaster Place, Strand, W.C.2, on a form which will be supplied by him on request.

Age of Applicant and Period of Licence

44.—(1) An applicant for the grant of an aircraft maintenance engineer's licence must be not less than 21 years of age.

(2) The period for which a licence may remain in force, following either the grant or any renewal thereof, shall not exceed twelve months.

Requirements for Grant, etc., of Licence

45. The requirements to be satisfied for the grant or renewal of a licence or for the extension of a rating are specified in "Section L1—Licensing" of "British Civil Airworthiness Requirements" published by the Board.

Privileges attaching to Licence

46. The categories of certification and duties of certification in respect of which licences may be granted shall be as follows:—

Category A (applicable to aircraft, excluding engines)

(i) Certification as to fitness for flight of an aircraft for which a certificate of airworthiness is about to be issued.

(ii) Certification as to the safety for flight of public transport aircraft.

(iii) Certification of work done under approved maintenance schedules.

(iv) Certification of repairs approved as minor repairs.

(v Certification of modifications approved as minor modifications.

(vi) Certification of replacement of approved components and parts.

Category B (applicable to aircraft, excluding engines)

(i) Certification of aircraft after overhaul, including the engine installation, except that the overhaul, repair or modification of the instruments, automatic pilots, variable-pitch propellers, or electrical equipment shall have been previously certified by a firm approved for the purpose or by an aircraft maintenance engineer licensed for the purpose in Category X.

(ii) Certification of approved repairs.
(iii) Certification of approved modifications.
(iv) Certification of the replacement of approved components and parts.
(v) Certification of the construction of components and parts and the materials used therefor, unless it is stated in the licence that this duty is excluded.

Category C (applicable to engines)

(i) Certification as to fitness for flight of the engines in an aircraft for which a certificate of airworthiness is about to be issued.
(ii) Certification as to the safety for flight of engines in public transport aircraft.
(iii) Certification of work done under approved maintenance schedules.
(iv) Certification of the embodiment of approved modifications and the replacement of approved components and parts, provided that the work has not involved dismantling the engine other than to obtain access to the pistons, cylinders and valve-operating gear.

Category D (applicable to engines only)

(i) Certification of engines after overhaul, except that the overhaul, repair or modification of magnetos and other ignition equipment shall have been previously certified by a firm approved for the purpose or by an aircraft maintenance engineer licensed for the purpose in Category X
(ii) Certification of approved repairs.
(iii) Certification of approved modifications.
(iv) Certification of the replacement of approved components and parts.
(v) Certification of the construction of components and parts and the materials used therefor, unless it is stated in the licence that this duty is excluded.

Category X

(i) Certification of the installation and the compensation of compasses.
(ii) Certification of overhauls, repairs, modifications or replacements to magnetos and other ignition equipment.
(iii) Certification of overhauls, repairs, modifications or replacements to and installation of :—
(*a*) variable-pitch propellers ;
(*b*) aircraft instruments and engine instruments ;
(*c*) electrical equipment ;
(*d*) automatic pilots.

SECTION IX

LOG BOOKS

47. With reference to Article 24 of the Order, application for the issue of a journey log book (C.A. Form 26) in respect of an aircraft should be made, accompanied by the appropriate fee, to the Secretary, Ministry of Civil Aviation, London, W.C.2. Such books will be issued only in respect of individual aircraft, and the first page of each book will be completed by the Ministry of Civil Aviation before issue.

48. Journey log books shall be kept so as to furnish all the information and particulars for which they provide, and the Instructions for Use set out therein shall be complied with.

49. Entries in journey log books, other than entries made by the Ministry of Civil Aviation before issue and any visas by aeronautical or customs authorities, shall be made and signed by the person or persons whose signature is required by the particular form of log book which is being used.

50. The following log books shall be in all essentials in the form of the authorised patterns published by His Majesty's Stationery Office :—

Aircraft log book, other than for airships and balloons	C.A. Form 27
Engine log book	C.A. Form 28
Variable-pitch propeller log book	M.C.A. Form 319
Personal flying log book	C.A. Form 24

51. Aircraft log books, other than for airships and balloons, engine log books, variable-pitch propeller log books, and other log books shall be kept so as to furnish all the information and particulars provided for in the authorised patterns referred to in Regulation 50, and the Instructions for Use set out in such authorised patterns shall be complied with, subject to these Regulations.

(Aircraft log books for airships and balloons and log books for winches of captive balloons will be kept in such manner as the Minister may require.)

52. All entries, other than preliminary data ordinarily furnished by the constructor in the original aircraft, engine and variable-pitch propeller log book shall—

(*a*) In the case of a certificate under Regulation 42 in Section VII of these Regulations, be made and signed in accordance with that paragraph.

(*b*) In other cases, be made and signed by a licensed aircraft maintenance engineer, except that, as regards matters which could not have come to the notice of a licensed aircraft maintenance engineer, the entries shall be made and signed by the pilot :

Provided that (*b*) of this paragraph shall not apply with respect to any entry prescribed to be made by a licensed aircraft radio engineer.

53. When repairs to an aircraft, engine or variable-pitch propeller have been required in consequence either of damage caused by a forced landing or of defects which have occasioned a forced landing, the entry of such repairs made in the aircraft, engine or variable-pitch propeller log book shall state that they have been so required and shall identify the forced landing in question by referring to the entry thereof contained in the journey log book.

54. Entries in the journey log book and the personal flying log book shall be made at latest within 24 hours after the events to which they relate, and the relevant particulars in the journey log book shall be entered in the aircraft, engine, or variable-pitch propeller log book at latest within 24 hours after the return of the aircraft to its station.

55. Every entry and signature in any log book shall be made in ink or indelible pencil.

SECTION X

OPERATING CREW TO BE CARRIED IN AIRCRAFT*

56. With reference to Article 19 of the Order, the following requirements shall apply in relation to the number and description of the members of the operating crew to be carried in aircraft registered in the United Kingdom.

Minimum crew for any flight

57. On all flights an aircraft shall have on board, for the purpose of acting as members of the operating crew, the number and description of persons specified as the minimum operating crew for that aircraft in its certificate of airworthiness.

Carriage of a flight engineer

58. Where a flight engineer is required by the terms of the certificate of airworthiness to be carried in an aircraft and a separate place of duty is provided for such engineer in the aircraft, the engineer so carried shall be a separate person from any other member of the operating crew and shall not carry out any duties in the aircraft other than those of a flight engineer.

Carriage of additional pilots

59.—(1) When an aircraft carries two or more pilots as members of the operating crew one of them shall, before the flight commences, be designated by the operator of the aircraft as the senior pilot and the other pilots shall act only under his direction.

(2) A public transport flying machine having a maximum total weight authorised of more than 22,500 lb. and flying in circumstances which require it to comply with the instrument flight rules in Schedule II to the Order when departing from or arriving at an aerodrome shall carry, to act in the capacity of second pilot and for the particular purpose of assisting the senior pilot during such departure and landing as aforesaid, a person who is the holder of a commercial, senior commercial or airline transport pilot's licence (flying machines) including an instrument rating.

Carriage of a flight navigator

60.—(1) A public transport flying machine carrying out

(*a*) a flight during the course of which it may be over water for a great circle distance of more than 1,000 nautical miles, or

(*b*) a flight without landing for a great circle distance of more than 1,500 nautical miles

shall have on board to act in the capacity of flight navigator a person who is the holder of a flight navigator's licence. Except as provided in paragraph (2) of this Regulation he shall be a separate person from any other member of the operating crew and shall not carry out any duties in the flying machine other than navigational duties.

(2) When a pilot and second pilot are carried, either the pilot or the second pilot, whichever is licensed as a flight navigator, may be responsible for the

* NOTE : The requirements in respect of the carriage of flight radio operators are specified in the Air Navigation (Radio) Regulations, 1949. Section III of those regulations provides that if an aircraft carries out two-way communication by means of morse messages and is flown in circumstances which require it to comply with the instrument flight rules in Schedule II to the Order, the flight radiotelegraphy operator shall be a separate person from any other member of the operating crew and, while on duty as a flight radiotelegraphy operator, shall not carry out any duties in the aircraft other than those of a flight radiotelegraphy operator.

navigation of the flying machine if he holds a commercial, senior commercial or airline transport pilot's licence (flying machines) having an aircraft rating in respect of the particular type of flying machine.

61. The foregoing regulations in this Section have effect subject to the provisions of the proviso to Article 19 (2) of the Order as to the powers of the Minister.

SECTION XI

STUDENT PILOT'S LICENCE (FLYING MACHINES)

62. With reference to Article 22 of the Order, application for the grant or renewal of a student pilot's licence should be made to the Secretary, Ministry of Civil Aviation, London, W.C.2, on a form which will be supplied by him on request.

Age of Applicant and Period of Licence

63.—(1) An applicant for the grant of a licence must be not less than 17 years of age.

(2) The period for which a licence may (subject as provided by paragraph (*d*) in Regulation 65) remain in force, following either the grant or any renewal thereof, shall not exceed—

(*a*) twenty-four months if the applicant is less than 35 years of age; or

(*b*) twelve months if the applicant is 35 years of age or more.

Medical Requirements

64.—(1) An applicant for the grant or renewal of a licence shall be required to—

(*a*) satisfy the requirements as to mental and physical fitness specified in Section XIII of these Regulations for the grant of a private pilot's licence (flying machines); and

(*b*) furnish to the medical examiner a declaration, signed by him, stating whether he has previously undergone such medical examination, and, if so, where, when and with what result. A false declaration may entail the cancellation of any licence granted or renewed as a result of the examination.

(2) The holder of a licence shall comply with the requirements specified in Regulations 192 and 193.

Conditions of Licence

65. A licence

(*a*) shall entitle the holder thereof, subject to the provisions of sub-paragraphs (*c*) and (*d*) in paragraph (1) of Regulation 66, to carry out flights as pilot in charge of a flying machine only for the purpose of becoming qualified for the grant or renewal of a flying machine pilot's licence;

(*b*) shall be valid only for flights within the United Kingdom;

(*c*) shall be subject to such further conditions as may be attached to or endorsed on the licence; and

(*d*) shall lapse upon the grant to the holder of a flying machine pilot's licence.

SECTION XII

PRACTICE FLIGHTS

66. With reference to Article 18 (5) of the Order, a person who is not the holder of a pilot's licence to fly flying machines or public transport or aerial work gliders may fly within the United Kingdom as pilot in charge of a flying machine or a public transport or aerial work glider, as the case may be, for the purpose of becoming qualified for the grant or renewal of such a licence, subject to the conditions specified in paragraphs (1) and (2) respectively of this Regulation.

(1) *Flying Machines*—

(*a*) He shall, if required to do so by Article 22 of the Order, be the holder of a student pilot's licence granted under the Order;

(*b*) he must be not less than 17 years of age;

(*c*) no other person, except a person required under the Order or these Regulations to be carried as a member of the operating crew, shall be carried in the flying machine; and

(*d*) each flight shall be carried out in accordance with instructions given by a person entitled by virtue of a rating included in his pilot's licence to give instruction in flying flying machines and shall terminate at the aerodrome of departure. Intermediate practice landings may, however, in accordance with such instructions, be made elsewhere than at the aerodrome of departure.

(2) *Public Transport or Aerial Work Gliders*—

(*a*) He must be not less than 16 years of age. A person, however, who is not less than 14 years of age may carry out flights on a glider not towed by a flying machine or on a towed glider of which the maximum total weight authorised does not exceed 1,250 lb. provided that each such flight is carried out wholly within three nautical miles from a certified point;

(*b*) no other person, except a person required under the Order or these Regulations to be carried as a member of the operating crew, shall be carried in the glider;

(*c*) in the case of a glider of which the maximum total weight authorised exceeds 1,250 lb. which in the course of flight is towed by a flying machine and released therefrom, each flight shall be carried out in accordance with instructions given by a person entitled, by virtue of a rating included in his pilot's licence, to give instructions in flying gliders towed by flying machines, and shall terminate either at the aerodrome of departure, or, with the consent of such person, at a place within three nautical miles therefrom.

Flights to qualify for Extension of Licence

67. With reference to Article 18 (6) of the Order, a person who is the holder of a pilot's licence to fly flying machines or gliders may fly within the United Kingdom as pilot in charge of a flying machine or glider, as the case may be, of a class or type other than a class or type to which the licence relates, for the purpose of qualifying for an extension of the licence to include such class or type of flying machine or glider:

Provided that, when he is so flying, no other person shall be carried in the flying machine or glider except

(*a*) a person required under the Order or these Regulations to be carried as a member of the operating crew of the flying machine or glider; or

(*b*) if the pilot in charge of the flying machine is the holder of a pilot's licence to fly public transport flying machines, a person carried with the consent of the operator of the flying machine for the purpose of being trained to perform duties as a member of the operating crew of a flying machine.

Flying Machines Towing Gliders

68. With reference to Article 42 (2) of the Order, a person who is the holder of a pilot's licence to fly flying machines may fly within the United Kingdom as pilot in charge of a flying machine towing a glider of which the maximum total weight authorised exceeds 1,250 lb., and as pilot in charge of such a glider as aforesaid which in the course of flight is towed by a flying machine and released therefrom, for the purpose of becoming qualified for the grant of a towing rating, subject to the following conditions:—

(*a*) no other person, except a person required under the Order or these Regulations to be carried as a member of the operating crew, shall be carried in the flying machine or the glider;

(*b*) when flying as pilot in charge of a flying machine towing such a glider as aforesaid each flight shall be carried out in accordance with instructions given by a person entitled, by virtue of a rating included in his pilot's licence, to give instruction in flying gliders towed by flying machines, and in such manner that both the flying machine, and the glider after release therefrom, land either at the aerodrome of departure or, with the consent of such person, at a place within three nautical miles therefrom; and

(*c*) when flying as pilot in charge of such a glider as aforesaid which in the course of flight is towed by a flying machine and released therefrom, each flight shall be carried out in accordance with instructions given by a person entitled, by virtue of a rating included in his pilot's licence, to give instruction in flying gliders towed by flying machines, and shall terminate either at the aerodrome of departure, or, with the consent of such person, at a place within three nautical miles therefrom:

Provided that condition (*c*) shall not apply if the person flying as pilot in charge of the glider is the holder of a glider pilot's licence valid for the type of glider in which the flight is being made.

SECTION XIII

LICENSING OF MEMBERS OF OPERATING CREW

General

69. With reference to Articles 20 and 21 of the Order, application for the grant, renewal, extension or validation of a licence to act as a member of the operating crew of aircraft registered in the United Kingdom should be made to the Secretary, Ministry of Civil Aviation, London, W.C.2, on a form which will be supplied by him on request.

70. The requirements to be complied with in respect of technical competency, flying experience, etc., and the other conditions relating to the various classes of licences (other than Flight radio operators' licences*) set out in Article 20 of the Order are specified in this Section as indicated hereunder. Section XII of these Regulations shows the conditions under which practice flights to acquire the necessary competence and flying experience may be carried out.

With reference, however, to Regulations 75 to 120 (which relate to flying machine pilots' licences) the requirements and conditions therein specified may, as respects licences to fly flying machines other than aeroplanes (e.g. helicopters or gyroplanes) be subject to such modifications as the Minister may consider appropriate in the particular case.

Exemption for Military Pilots

71. An applicant who has at any time qualified as a pilot of flying machines in any of His Majesty's air forces may, at the discretion of the Minister and according to the applicant's qualifications and flying experience, be exempted from all or any part of the practical flying tests and the technical examinations specified in this Section for the grant of a flying machine pilot's licence, the extension of the aircraft rating in such a licence or the inclusion therein of an instrument rating:

Provided that

(i) Such exemption may, if it relates to practical flying tests, be made conditional upon the satisfactory completion by the applicant of a special flying test; and

(ii) any exemption from the requirements specified for the extension of an aircraft rating shall be determined having regard to the applicant's flying experience on the class or type of flying machine to which the application relates.

INSTRUMENT RATING

Privileges attaching to Rating

72. An instrument rating shall entitle the holder of the licence in which it is included, subject to the privileges attaching to the licence, to act as pilot in charge, or as second pilot when a second pilot is required to be carried, of a flying machine carrying out a flight in accordance with the instrument flight rules in Schedule II to the Order:

Provided that the holder of an instrument rating shall not be entitled to exercise the privilege of the rating, either as pilot in charge or as second pilot, unless he has, during the immediately preceding twelve months, passed an instrument flying test including, if appropriate, asymmetric power tests, and a certificate by an approved examiner to that effect is entered on the certificate of validity relating to the licence.

Requirements for obtaining Rating

73. An applicant for an instrument rating shall be required to satisfy the requirements as respects flying experience, instrument flying tests and technical examination hereunder specified.

* The requirements for the grant of Flight radio operators' licences are contained in the Air Navigation (Radio) Regulations, 1949, S.I. 1949 No. 375, p. 341 below.

Flying Experience

The applicant shall be required to produce satisfactory evidence that he—

(*a*) has carried out as pilot in charge of a flying machine not less than 150 hours' flying, including 50 hours' cross-country flying by day; and

(*b*) has carried out as pilot of a flying machine not less than 40 hours' flying solely by reference to instruments:

Provided that

(i) a maximum of 20 hours' instrument flying training carried out on the ground in approved devices may be accepted in part satisfaction of this requirement; and

(ii) in the case of an applicant who has passed an approved course of training in instrument flying the said requirement of 40 hours' flying may be reduced to 30 hours, but in such case the maximum of 20 hours' instrument flying training referred to in proviso (i) above shall be reduced to 10 hours.

Instrument Flying Tests

The applicant shall be required, in the course of an instrument flying test with an examiner on board, to demonstrate his competence to fly solely by reference to instruments and in accordance with the instrument flight rules in Schedule II to the Order.

Technical Examination

The applicant shall be required to undergo an examination (including practical tests) as to his knowledge of the following subjects:—

(*a*) aviation law;

(*b*) flight operation;

(*c*) air navigation;

(*d*) meteorology; and

(*e*) the interpretation of signals given in morse code.

Syllabuses of Instrument Flying Tests and Technical Examination

74. The details of the instrument flying tests (including asymmetric power tests) and the technical examination referred to in Regulations 72 and 73 are specified in M.C.A. Pamphlet No. 56, "Instrument Rating", copies of which may be obtained on application to the Secretary, Ministry of Civil Aviation, London, W.C.2.

PRIVATE PILOT'S LICENCE (FLYING MACHINES)

Age of Applicant and Period of Licence

75.—(1) An applicant for the grant of a private pilot's licence (flying machines) must be not less than 17 years of age.

(2) The period for which a licence may remain in force, following either the grant or any renewal thereof, shall not exceed—

(*a*) twenty-four months if the applicant is less than 35 years of age; or

(*b*) twelve months if the applicant is 35 years of age or more.

Privileges attaching to Licence

76. The holder of the licence shall be entitled to fly—

(*a*) as pilot in charge of any private flying machine of a type described or specified in the aircraft rating of the licence ; and

(*b*) as second pilot of any private flying machine of the same class as a flying machine described or specified in the aircraft rating of the licence.

Particulars of Aircraft Rating

77. The aircraft rating included in a licence to fly aeroplanes may include one or more of the following groups or types of aeroplanes: Provided that each group shall be restricted to the class of aeroplanes in respect of which the applicant qualifies for the grant of a licence: —

Group A.—All single-engined types of aeroplanes of which the maximum total weight authorised does not exceed 12,500 lb.

Group B.—All types of aeroplanes having two or more engines of which the maximum total weight authorised does not exceed 12,500 lb.

Group C.—Particular types of aeroplanes of which the maximum total weight authorised exceeds 12,500 lb.

Technical Requirements for Grant of Licence

Flying Experience

78. An applicant for the grant of a licence shall be required to produce satisfactory evidence that he has had not less than 40 hours' experience as a pilot of flying machines, comprising—

(i) flying training under a competent instructor in a dual-controlled flying machine ; and

(ii) at least 15 hours' flying as pilot in charge, not less than 3 hours of which must have been cross-country flying carried out within the six months immediately preceding the date of the application, and must have included one flight on a triangular course during which the flying machine landed and came to rest at two intermediate places one being not less than 50 nautical miles from the place of departure :

Provided that in the case of an applicant who has passed an approved course of flying training the said requirement of 40 hours' flying may be reduced to 30 hours.

Practical Flying Tests

79. The applicant shall, subject to the provisions of Regulation 81, be required to demonstrate in the course of general flying tests his competence to carry out normal and emergency manoeuvres on the class or type of flying machine to which the application relates.

Technical examination

80. The applicant shall, subject to the provisions of Regulation 81, be required to undergo an examination as to his knowledge of the following subjects :—

(*a*) aviation law ;

(*b*) elementary meteorology ;

(*c*) map reading and use of compass ;

(*d*) method of operation and functioning of flying machines, with particular relation to the class or type of flying machine for which the licence is desired.

Exemptions

81. An applicant may, at the discretion of the Minister and according to the applicant's qualifications and experience, be exempted from all or any part of the flying tests and technical examination if he:—

(i) has at any time held a flying machine pilot's licence; or

(ii) holds a Royal Aero Club Aviator's Certificate in respect of the class or type of flying machine to which the application relates issued within the period of one year immediately preceding the date of the application for the licence.

Syllabuses of Practical Flying Tests and Technical Examination

82. The details of the practical flying tests, including the conditions applicable thereto, and the technical examination referred to in Regulations 79 and 80 are specified in M.C.A. Pamphlet No. 53 " Private Pilot's Licence ", copies of which may be obtained on application to the Secretary, Ministry of Civil Aviation, London, W.C.2.

Night Rating

83.—(1) A night rating may be included in a licence and shall entitle the holder, subject to the privileges attaching to the licence, to act as pilot in charge of flying machines carrying passengers on flights made by night:

Provided that the holder of a licence which includes a night rating shall not (except in a case where the licence also includes a rating entitling him to act as instructor or as assistant instructor in the flying of flying machines and he is flying for the purpose of so acting) exercise the privileges of such night rating unless he has, within the immediately preceding six months, carried out as pilot in charge of a flying machine not less than five take-offs and five landings by night.

(2) An applicant for a night rating shall be required to produce satisfactory evidence that he has carried out in an aeroplane not less than 50 hours' flying as pilot, comprising:—

(*a*) flying training under a competent instructor in a dual-controlled aeroplane;

(*b*) at least 25 hours' flying as pilot in charge of the aeroplane;

(*c*) at least 5 hours' instruction in instrument flying; and

(*d*) at least 5 hours' night flying, including not less than five flights as pilot in charge, carried out to the satisfaction of a competent instructor within the six months immediately preceding the date of the application:

Provided that a maximum of two and a half hours' instrument flying training carried out on the ground in approved devices may be accepted in part satisfaction of the requirement specified at (*c*) in this paragraph.

(3) The evidence normally required with respect to the flying experience specified at (*c*) in this paragraph shall consist of a certificate issued by a person who holds a flying machine pilot's licence including an instructor's rating.

Flying Experience for Renewal of Licence

84. An applicant for the renewal of a licence shall be required to produce satisfactory evidence that he has had, during the twelve months immediately preceding the date of the application, not less than 5 hours' flying experience as pilot in charge on each class of flying machine for which the renewal is desired. In default of such evidence the applicant may be required to undergo

all or any part of the practical flying tests and the technical examination specified for the grant of a licence, as the Minister may consider appropriate in the circumstances of the case.

Extension of Licence

85. An applicant for the extension of the aircraft rating in a licence to include an additional class or type of flying machine will normally be required to carry out practical flying tests in accordance with Regulation 79 and to undergo a technical examination in the method of operation and functioning of flying machines of the class or type to which the application relates:

Provided that an applicant may, at the discretion of the Minister and according to the applicant's qualifications and experience, be exempted from all or any part of the said tests and examination if he holds a Royal Aero Club Aviator's Certificate in respect of the class or type of flying machine to which the application relates issued within the period of two years immediately preceding the date of the application.

COMMERCIAL PILOT'S LICENCE (FLYING MACHINES)

Age of Applicant and Period of Licence

86. An applicant for the grant of a commercial pilot's licence (flying machines) must be not less than 18 years of age.

87. The period for which a licence may remain in force, following either the grant or any renewal thereof, shall not exceed six months.

Aircraft Rating

88. The aircraft rating included in the licence shall specify, in Group 1 and Group 2 thereof, the type or types of flying machines which, subject to Regulation 89, the holder of the licence is entitled to fly as pilot in charge and as second pilot respectively.

Group 2 shall include all the types of flying machines which are entered in Group 1 and such other types as may be specified.

Privileges attaching to Licence

89. The holder of the licence shall be entitled to fly—

(i) as pilot in charge of—

(*a*) any public transport flying machine of which the maximum total weight authorised does not exceed 12,500 lb. and which is not employed on a scheduled journey; and

(*b*) any aerial work flying machine; and

(*c*) any private flying machine;

which is of the same type as a flying machine specified in Group 1 of the aircraft rating of the licence; and

(*d*) any private aeroplane of which the maximum total weight authorised does not exceed 12,500 lb. and having (i) one engine, or (ii) more than one engine, if, as respects (i), an aeroplane of the same class and having one engine, and, as respects (ii), an aeroplane of the same class and having more than one engine, is specified in Group 1 of the aircraft rating of the licence:

Provided that the holder of the licence shall not (except in a case where he is a person entitled by virtue of a rating included in the licence to act as instructor or as assistant instructor in the flying of

flying machines and is flying for the purpose of so acting) be entitled to act as pilot in charge of a flying machine carrying passengers on a flight made by night, unless he has, within the immediately preceding 90 days, carried out as pilot in charge of a flying machine not less than 5 take-offs and 5 landings by night; and

(ii) as second pilot of—

(*a*) any public transport flying machine carrying passengers;

(*b*) any public transport flying machine not carrying passengers;

(*c*) any aerial work flying machine; and

(*d*) any private flying machine;

which, as respects (*a*), is of the same type, and, as respects (*b*), (*c*) and (*d*), is of the same class, as a flying machine specified in Group 2 of the aircraft rating of the licence.

Technical Requirements for Grant of Licence

Flying Experience

90. An applicant for the grant of a licence shall, subject to the provisions of Regulation 94, be required to produce satisfactory evidence that he has had not less than 200 hours' experience in flying flying machines, comprising—

(*a*) flying training under a competent instructor in a dual-controlled flying machine, not less than 10 hours of which must have been instruction in instrument flying;

(*b*) flying as pilot in charge for not less than 100 hours, including

(i) at least 20 hours' cross-country or oversea flying, including one flight of at least 300 nautical miles during which the flying machine must have landed and come to rest at two intermediate places;

(ii) at least 10 hours' night flying (5 hours of which, however, may have been carried out under instruction), during which the applicant must have carried out 10 take-offs and 10 landings by night without assistance from any other person on board the flying machine; and

(iii) at least 10 hours' flying carried out during the six months immediately preceding the date of the application; and

(*c*) a reasonable amount of flying experience as pilot on the type of flying machine to which the application relates:

Provided that

(i) in the case of an applicant who has passed an approved course of flying training, the said requirement of 200 hours' flying experience may, at the discretion of the Minister, be reduced to 150 hours;

(ii) flying experience as second pilot may be reckoned towards the total requirement of 200 hours (or 150 hours) to the extent that one half of such flying, up to a maximum allowance of 50 hours, may be included if it was carried out on (*a*) flying machines required under the Order or these Regulations to have on board more than one pilot, or (*b*) military flying machines which normally carried more than one pilot.

Practical Flying Tests

91. The applicant shall, subject to the provisions of Regulation 94, be required in the course of flying tests, including flights by day and by night with an examiner on board, to demonstrate his general competence as a pilot during normal and emergency manoeuvres and his ability to fly the type of flying machine to which the application relates.

Technical Examination

92. The applicant shall, subject to the provisions of Regulation 94, be required to undergo an examination (including practical tests) as to his knowledge of the following subjects :—

(*a*) aviation law ;
(*b*) flight operation ;
(*c*) air navigation ;
(*d*) meteorology ;
(*e*) the interpretation of navigational aid identification signals ;
(*f*) theory of flight and aircraft operating limitations ;
(*g*) aircraft equipment and installations ;
(*h*) airframe and power plant maintenance.

Syllabuses of Practical Flying Tests and Technical Examination

93. The details of the practical flying tests, including the conditions applicable thereto, and the technical examination referred to in Regulations 91 and 92 are specified in M.C.A. Pamphlet No. 54, " Commercial Pilot's Licence ", copies of which may be obtained on application to the Secretary, Ministry of Civil Aviation, London, W.C.2.

Exemptions

94. An applicant who has been the holder of a commercial pilot's licence (flying machines) or a licence of a higher class may, at the discretion of the Minister and having regard to the type of flying machine for which a licence is desired, be exempted from all or any part of the requirements as to flying experience, practical flying tests and technical examination specified in Regulations 90, 91 and 92. Any exemption in respect of the said practical flying tests may be made conditional upon the satisfactory completion by the applicant of a special flying test.

Flying Experience for Renewal of Licence

95. An applicant for the renewal of a licence shall be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot of flying machines during the six months immediately preceding the date of the application. The applicant may also, at the discretion of the Minister, be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot on each type of flying machine for which the renewal is desired since the type was entered on the licence. In default of such evidence as aforesaid the applicant may be required to undergo all or any part of the practical flying tests and technical examination specified for the grant or extension of a licence as the Minister may consider appropriate in the circumstances of the case.

Extension of Licence

96. An applicant for the extension of the aircraft rating of a licence to include the flying of an additional type of flying machine, either as pilot in charge or as second pilot, shall be required to satisfy the Minister as to his competence to fly the type of flying machine concerned. For this

purpose the applicant shall be required to satisfy the requirements as to flying experience, practical flying tests and technical examination specified in the pamphlet referred to in Regulation 93.

Senior Commercial Pilot's Licence (Flying Machines)

Age of Applicant and Period of Licence

97. An applicant for the grant of a senior commercial pilot's licence (flying machines) must be not less than 21 years of age.

98. The period for which a licence may remain in force, following either the grant or any renewal thereof, shall not exceed six months.

Aircraft Rating

99. The aircraft rating included in the licence shall specify, in Group 1 and Group 2 thereof, the type or types of flying machines which, subject to Regulation 100, the holder of the licence is entitled to fly as pilot in charge and as second pilot respectively. Group 2 shall include all the types of flying machines which are entered in Group 1 and such other types as may be specified.

Privileges attaching to Licence

100.—(1) The holder of the licence shall be entitled to fly—

(i) as pilot in charge of

(*a*) any public transport flying machine of which the maximum total weight authorised does not exceed 15,000 lb.,

(*b*) any public transport flying machine, not carrying passengers, of which the maximum total weight authorised does not exceed 30,000 lb.,

(*c*) any aerial work flying machine, and

(*d*) any private flying machine,

which is of the same type as a flying machine specified in Group 1 of the aircraft rating of the licence; and

(*e*) any private aeroplane of which the maximum total weight authorised does not exceed 12,500 lb. and having (i) one engine, or (ii) more than one engine, if, as respects (i), an aeroplane of the same class and having one engine, and, as respects (ii), an aeroplane of the same class and having more than one engine, is specified in Group 1 of the aircraft rating of the licence; and

(ii) as second pilot of—

(*a*) any public transport flying machine carrying passengers,

(*b*) any public transport flying machine not carrying passengers,

(*c*) any aerial work flying machine, and

(*d*) any private flying machine,

which, as respects (*a*), is of the same type, and, as respects (*b*), (*c*) and (*d*), is of the same class, as a flying machine specified in Group 2 of the aircraft rating of the licence.

Instrument Rating

(2) The licence shall include an instrument rating.

Technical Requirements for Grant of Licence

Instrument Rating

101. An applicant for the grant of a licence shall be required to satisfy the requirements for an instrument rating specified in Regulation 73: Provided that an applicant who is the holder of a flying machine pilot's licence in which an instrument rating is included shall be excepted from this requirement.

Flying Experience

102. The applicant shall, subject to the provisions of Regulation 106, be required to produce satisfactory evidence that he has had not less than 700 hours' experience as pilot in flying machines, comprising

(*a*) not less than 200 hours' experience as pilot in charge of flying machines, including

(i) at least 50 hours' cross-country or oversea flying;

(ii) at least 25 hours' night flying;

(iii) at least 10 hours' cross-country or oversea flying by night; and

(iv) at least 10 hours' flying carried out during the six months immediately preceding the date of the application; and

(*b*) a reasonable amount of flying experience as pilot on the type of flying machine to which the application relates:

Provided that flying experience as second pilot may be reckoned towards the total requirement of 700 hours to the extent that one half of such flying may be included if it was carried out on (*a*) flying machines required under the Order or these Regulations to have on board more than one pilot, or (*b*) military flying machines which normally carried more than one pilot.

Practical Flying Tests

103. The applicant shall, subject to the provisions of Regulation 106, be required, in the course of flying tests with an examiner on board and including an instrument flying test, to demonstrate his general competence as a pilot during normal and emergency manoeuvres under visual and instrument flight conditions, and his ability to fly the type of flying machine to which the application relates.

Technical Examination

104. The applicant shall, subject to the provisions of Regulation 106, be required to undergo an examination (including practical tests) as to his knowledge of the following subjects:—

(*a*) aviation law;

(*b*) flight operation;

(*c*) air navigation;

(*d*) meteorology;

(*e*) the interpretation of navigational aid identification signals;

(*f*) theory of flight and aircraft operating limitations;

(*g*) aircraft equipment and installations;

(*h*) airframe and power plant maintenance.

Syllabuses of Practical Flying Tests and Technical Examination

105. The details of the practical flying tests, including the conditions applicable thereto, and the technical examination referred to in Regulations 103 and 104 are specified in M.C.A. Pamphlet No. 55, " Senior Commercial Pilot's Licence ", copies of which may be obtained on application to the Secretary, Ministry of Civil Aviation, London, W.C.2.

Exemptions

106. (i) An applicant who is the holder of a commercial pilot's licence (flying machines) in respect of the type of flying machine to which the application relates shall not be required to undergo again the flying tests and technical examination normally required in respect of that type; and

(ii) An applicant who has been the holder of a senior commercial pilot's licence (flying machines) or a licence of a higher class may, at the discretion of the Minister and having regard to the type of flying machine for which a licence is desired, be exempted from all or any part of the requirements as to flying experience, practical flying tests and technical examination, specified in Regulations 102, 103 and 104. Any exemption in respect of the said practical flying tests may be made conditional upon the satisfactory completion by the applicant of a special flying test.

Renewal of Licence

107. An applicant for the renewal of a licence shall be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot of flying machines during the six months immediately preceding the date of the application. The applicant may also, at the discretion of the Minister, be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot on each type of flying machine for which the renewal is desired since the type was entered on the licence. In default of such evidence as aforesaid the applicant may be required to undergo all or any part of the practical flying tests and technical examination specified for the grant or extension of a licence as the Minister may consider appropriate in the circumstances of the case.

Extension of Licence

108. An applicant for the extension of the aircraft rating of a licence to include the flying of an additional type of flying machine, either as pilot in charge or as second pilot, shall be required to satisfy the Minister as to his competence to fly the type of flying machine concerned. For this purpose the applicant shall be required to satisfy the requirements as to flying experience, practical flying tests and technical examination specified in the pamphlet referred to in Regulation 105.

AIRLINE TRANSPORT PILOT'S LICENCE (FLYING MACHINES)

Age of Applicant and Period of Licence

109. An applicant for the grant of an airline transport pilot's licence (flying machines) must be not less than 21 years of age.

110. The period for which a licence may remain in force, following either the grant or any renewal thereof, shall not exceed six months.

Aircraft Rating

111. The aircraft rating included in the licence shall specify, in Group 1 and Group 2 thereof, the type or types of flying machines which, subject to Regulation 112, the holder of the licence is entitled to fly as pilot in charge and as second pilot respectively. Group 2 shall include all the types of flying machines which are entered in Group 1 and such other types as may be specified.

Privileges attaching to Licence

112.—(1) The holder of the licence shall be entitled to fly—

(i) as pilot in charge of—

(*a*) any public transport flying machine,
(*b*) any aerial work flying machine, and
(*c*) any private flying machine,

which is of the same type as a flying machine specified in Group 1 of the aircraft rating of the licence ; and

(*d*) any private aeroplane of which the maximum total weight authorised does not exceed 12,500 lb. and having (i) one engine, or (ii) more than one engine, if, as respects (i), an aeroplane of the same class and having one engine, and, as respects (ii), an aeroplane of the same class and having more than one engine, is specified in Group 1 of the aircraft rating of the licence ; and

(ii) as second pilot of—

(*a*) any public transport flying machine carrying passengers,
(*b*) any public transport flying machine not carrying passengers,
(*c*) any aerial work flying machine, and
(*d*) any private flying machine,

which, as respects (*a*), is of the same type, and, as respects (*b*), (*c*) and (*d*), is of the same class, as a flying machine specified in Group 2 of the aircraft rating of the licence.

Instrument Rating

(2) The licence shall include an instrument rating.

Technical Requirements for Grant of Licence

Instrument Rating

113. An applicant for the grant of a licence shall be required to satisfy the requirements for an instrument rating specified in Regulation 73: Provided that an applicant who is the holder of a flying machine pilot's licence in which an instrument rating is included shall be excepted from this requirement.

Flying Experience

114. The applicant shall, subject to the provisions of Regulation 118, be required to produce satisfactory evidence that he has had not less than 1,200 hours' experience as a pilot in flying machines, comprising

(*a*) at least 100 hours' night flying ;

(*b*) at least 250 hours' flying as pilot in charge, of which not less than 10 hours must have been carried out during the six months immediately preceding the date of the application, and including not less than 100 hours' cross-country or oversea flying of which not less than 25 hours must have been flown by night ;

(*c*) at least 75 hours' flying solely by reference to instruments which must have been carried out by the applicant without assistance from any other person on board the flying machine ;

(*d*) a reasonable amount of flying on the type of flying machine to which the application relates ;

(*e*) at least 200 hours' cross-country or oversea flying as second pilot in flying machines required under the Order or these Regulations to have on board more than one pilot, or in military flying machines which normally carried more than one pilot :

Provided that

(i) flying experience as second pilot may be reckoned towards the total requirement of 1,200 hours to the extent that one half of such flying may be included if it was carried out in flying machines (*a*), required under the Order or these Regulations to have on board more than one pilot, or (*b*), in military flying machines which normally carried more than one pilot ;

(ii) an applicant who has had not less than 200 hours' experience as pilot in charge on cross-country or oversea flights may be exempted from the requirement specified at (*e*) in this paragraph ;

(iii) training in instrument flying carried out on the ground in approved devices may, at the discretion of the Minister, up to a maximum of 25 hours, be accepted in part satisfaction of the requirement specified at (*c*) in this paragraph.

Practical Flying Tests

115. The applicant shall, subject to the provisions of Regulation 118, be required, in the course of flying tests with an examiner on board and including an instrument flying test, to demonstrate his general competence as a pilot during normal and emergency manoeuvres under visual and instrument flight conditions, and his ability to fly the type of flying machine to which the application relates.

Technical Examination

116. The applicant shall, subject to the provisions of Regulation 118, be required to undergo an examination (including practical tests) as to his knowledge of the following subjects :—

(*a*) aviation law ;

(*b*) flight operation ;

(*c*) air navigation ;

(*d*) meteorology ;

(*e*) the interpretation of navigational aid identification signals ;

(*f*) theory of flight and aircraft operating limitations ;

(*g*) aircraft equipment and installations ;

(*h*) airframe and power plant maintenance.

Syllabuses of Practical Flying Tests and Technical Examination

117. The details of the practical flying tests, including the conditions applicable thereto, and the technical examination referred to in Regulations 115 and 116 are specified in M.C.A. Pamphlet No. 55, " Airline Transport Pilot's Licence ", copies of which may be obtained on application to the Secretary, Ministry of Civil Aviation, London, W.C.2.

Exemptions

118. (i) An applicant who is the holder of a commercial or a senior commercial pilot's licence (flying machines) in respect of the type of flying machine to which the application relates shall not be required to undergo again the flying tests and technical examination normally required in respect of that type; and

(ii) an applicant who has been the holder of an airline transport pilot's licence (flying machines) may, at the discretion of the Minister and having regard to the type of flying machine for which a licence is desired, be exempted from all or any part of the requirements as to flying experience, practical flying tests and technical examination specified in Regulations 114, 115 and 116. Any exemption in respect of the said practical flying tests may be made conditional upon the satisfactory completion by the applicant of a special flying test.

Renewal of Licence

119. An applicant for the renewal of a licence shall be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot of flying machines during the six months immediately preceding the date of the application. The applicant may also be required to produce satisfactory evidence that he has had reasonable flying experience on each type of flying machine for which the renewal is desired since the type was entered on the licence. In default of such evidence as aforesaid the applicant may be required to undergo all or any part of the practical flying tests and technical examination specified for the grant or extension of a licence as the Minister may consider appropriate in the circumstances of the case.

Extension of Licence

120. An applicant for the extension of the aircraft rating of a licence to include the flying of an additional type of flying machine, either as pilot in charge or as second pilot, shall be required to satisfy the Minister as to his competence to fly the type of flying machine concerned. For this purpose the applicant shall be required to satisfy the requirements as to flying experience, practical flying tests and technical examination specified in the pamphlet referred to in Regulation 117.

PRIVATE PILOT'S LICENCE (BALLOONS)

Age of Applicant and Period of Licence

121.—(1) An applicant for the grant of a private pilot's licence (balloons) must be not less than 17 years of age.

(2) The period for which a licence may remain in force, following either the grant or any renewal thereof, shall not exceed two years.

Aircraft Rating

122. A licence shall include an aircraft rating specifying the types of balloons which, subject to Regulation 123, the holder is entitled to fly.

Privileges attaching to Licence

123. The licence shall entitle the holder to fly as pilot of any type of free balloon other than a public transport or aerial work balloon.

Technical requirements for Grant of Licence

Practical Flying Tests

124. The applicant shall be required to produce satisfactory evidence that he has completed the following flights in a balloon, each of at least two hours' duration—

(*a*) By day:

6 ascents under instruction ;

1 flight in control under supervision ;

1 flight alone in the balloon ;

(*b*) By night: 2 flights alone in the balloon.

Technical Examination

125. The applicant shall be required to undergo an examination as to his knowledge of the following subjects:—

(*a*) elementary aerostatics ;

(*b*) general knowledge of a balloon and its accessories ; inflation ; rigging ; management of an ascent; instruments ; precautions against cold and high altitudes ;

(*c*) practical knowledge of aviation law, with particular reference to the Order and the Regulations issued thereunder, also knowledge of any information notified with respect to the responsibilities of a pilot ; and

(*d*) map reading ; elementary knowledge of weather in relation to cross-country flight and the use of the compass in flight:

Provided that

(i) an applicant who has at any time qualified as a pilot of balloons or airships in any of His Majesty's air forces may, at the discretion of the Minister and according to the applicant's qualifications and experience, be exempted from all or any of the above practical flying tests and from the technical examination, except as regards the examination subjects specified at (*c*) and (*d*) in this paragraph ; and

(ii) a certificate issued by any body approved for the purpose may be accepted in lieu of the passing of the above examination if the Minister is satisfied that the qualifications required for the issue of such certificate were at least equivalent to the passing of such examination.

Flying Experience for Renewal of Licence

126. An applicant for the renewal of a licence shall be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot of balloons during the two years immediately preceding the date of the application. In default of such evidence he may be required to undergo all or any part of the practical flying tests and technical examination specified for the grant of a licence, as the Minister may consider appropriate in the circumstances of the case.

COMMERCIAL PILOT'S LICENCE (BALLOONS)

Age of Applicant and Period of Licence

127.—(1) An applicant for the grant of a commercial pilot's licence (balloons) must be not less than 19 years of age.

(2) The period for which a licence may remain in force, following either the grant or any renewal thereof, shall not exceed two years.

Aircraft Rating

128. A licence shall include an aircraft rating specifying the types of balloons which, subject to Regulation 129, the holder is entitled to fly.

Privileges attaching to Licence

129. The licence shall entitle the holder to fly as pilot of any type of free balloon, and, subject to the requirements of Article 35 of the Order, any type of captive balloon specified in the aircraft rating included in the licence.

Technical requirements for Grant of Licence

Flying Experience

130. The applicant shall be required to produce satisfactory evidence—

(*a*) that he has had reasonable flying experience as a pilot in charge of balloons during the twelve months immediately preceding the date of the application; and

(*b*) that he has completed ten flights as pilot in charge of a balloon, each of which flights must have been of at least two hours' duration.

Practical Flying Tests

131. The applicant shall, subject to the provisions of Regulation 134, be required to carry out the practical flying tests specified in Regulation 124 for the grant of a private pilot's licence (balloons): Provided that a person who is the holder of such a licence may, at the discretion of the Minister, be exempted from this requirement.

Technical Examination

132. The applicant shall, subject to the provisions of Regulation 134, be required to undergo an examination as to his knowledge of the following subjects:—

(*a*) aerostatics;

(*b*) physical and chemical properties of light gases and of materials used in the construction of balloons;

(*c*) elementary navigation; use of compass; location of position;

(*d*) general knowledge of a balloon and its accessories; inflation; stowage; management of an ascent; instruments; precautions against cold and high altitudes;

(*e*) practical knowledge of aviation law, with particular reference to the Order and the Regulations issued thereunder, also knowledge of any information notified with respect to the responsibilities of a pilot; and

(*f*) elementary meteorology in relation to—

(i) meteorological elements and observations;

(ii) seasonal variations affecting weather;

(iii) the recognition of weather conditions while flying;

(iv) the interpretation of synoptic charts and the weather associated with different types of pressure systems;

(v) arrangements for the issue of weather reports and forecasts for aviation.

Captive Balloons

133. The following additional tests and examination shall, subject to the provisions of Regulation 134, be required in respect of applications for licences to include also the flying of captive balloons:—

(1) *Practical Flying Tests*—The applicant shall produce satisfactory evidence that he has completed six ascents on different days in sole control of a captive balloon, and has carried out satisfactorily the management from the ground of three ascents and descents of a captive balloon on different days (which may, however, be days on which some of the six ascents in sole control have been carried out).

(2) *Technical Examination*—

(*a*) General knowledge of a captive balloon of the type for which the licence is required; accessories; inflation; rigging; valve adjustments; management of an ascent; instruments; and

(*b*) general knowledge of winches and cables.

Exemption for Military Pilots

134. An applicant who has at any time qualified as a pilot of balloons or airships in any of His Majesty's air forces may, at the discretion of the Minister and according to the applicant's qualifications and experience, be exempted from all or any part of the practical flying tests and technical examination, except as regards the examination subjects specified at (*e*) and (*f*) in Regulation 132.

Flying Experience for Renewal of Licence

135. An applicant for the renewal of a licence shall be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot of balloons during the twelve months immediately preceding the date of the application. In default of such evidence the applicant may be required to undergo all or any part of the practical flying tests and technical examination specified for the grant of a licence, as the Minister may consider appropriate in the circumstances of the case.

AIRSHIP PILOT'S LICENCES

FIRST, SECOND AND THIRD CLASS

Age of Applicant and Period of Licence

136.—(1) An applicant for the grant of an airship pilot's licence, first class, second class or third class, must be not less than 19 years of age.

(2) The period for which a licence may remain in force, following either the grant or any renewal thereof, shall not exceed the following periods:—

Third class licence: six months.
Second class licence: twelve months.
First class licence: twelve months.

Aircraft Rating

137. A licence shall include an aircraft rating specifying the types of airships which, subject to Regulation 138, the holder is entitled to fly.

Privileges attaching to Licence

138.—(*a*) A third class licence shall entitle the holder to fly as pilot in charge of any airship the capacity of which is less than 200,000 cubic feet.

(*b*) A second class licence shall entitle the holder to fly as pilot in charge of any airship the capacity of which is less than 700,000 cubic feet.

(*c*) A first class licence shall entitle the holder to fly as pilot in charge of any airship.

Technical requirements for Grant of Licence

Third Class Licence

139. An applicant for the grant of a third class licence must be the holder of a balloon pilot's licence, private or commercial, and of a flight navigator's licence.

Flying Experience and Practical Tests.

140. The applicant shall be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot of airships during the two years immediately preceding the date of the application, and that he has completed—

(*a*) twenty flights (three of which must have been made by night) in an airship, each flight having been of at least one hour's duration. On at least four of these flights the applicant must have handled the airship himself, under the supervision of the person in command of the airship, including departure and landing, during the whole flight if the duration thereof did not exceed four hours, and during at least four hours if the flight was of longer duration; and

(*b*) one flight on a predetermined course of at least seventy miles, terminating with a night landing, and made with a properly accredited examiner on board.

Technical Examination

141. The applicant shall, subject to the provisions of Regulation 151, be required to undergo an examination (including practical tests) as to his knowledge of the following subjects:—

(*a*) aerostatics; density of gases, laws of Mariotte and Gay-Lussac; barometric pressure, Archimedes principle; confinement of gases;

(*b*) physical and chemical properties of light gases, and of materials used in the construction of airships;

(*c*) general theory of airships;

(*d*) dynamic properties of moving bodies in air;

(*e*) elementary knowledge of internal combustion engines; and

(*f*) inflation; stowage; rigging; handling; controls and instruments.

Flying Experience for Renewal of Licence

142. An applicant for the renewal of a licence shall be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot of airships during the two years immediately preceding the date of the application. In default of such evidence the applicant may be required to undergo all or any part of the practical flying tests and technical examination specified for the grant of a licence, as the Minister may consider appropriate in the circumstances of the case.

Second Class Licence

143. An applicant for the grant of a second class licence must be the holder of a balloon pilot's licence, private or commercial, and of a flight navigator's licence.

Flying Experience and Practical Tests

144. The applicant shall be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot of airships during the two years immediately preceding the date of the application, and that he has completed—

(*a*) at least four months' service on an airship in the capacity of a pilot holding an airship pilot's licence, third class; and

(*b*) at least ten flights in the capacity of a pilot holding an airship pilot's licence, third class, in an airship of greater capacity than 200,000 cubic feet, on which he handled the airship himself, under the supervision of the person in command of the airship, including departure and landing, during the whole flight if the duration thereof did not exceed four hours, and during at least four hours if the flight was of longer duration.

Technical Examination

145. The applicant shall, subject to the provisions of Regulation 151, be required to undergo an examination (including practical tests) to demonstrate that he has an advanced knowledge of the examination subjects specified for a third class licence.

Flying Experience for Renewal of Licence

146. An applicant for the renewal of a licence shall be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot of airships during the two years immediately preceding the date of the application. In default of such evidence the applicant may be required to undergo all or any part of the practical flying tests and technical examination specified for the grant of a licence, as the Minister may consider appropriate in the circumstances of the case.

First Class Licence

147. An applicant for the grant of a first class licence must be the holder of a balloon pilot's licence, private or commercial, and of a flight navigator's licence.

Flying Experience and Practical Tests

148. The applicant shall be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot of airships during the two years immediately preceding the date of the application and that he has completed—

(*a*) at least two months' service in an airship in the capacity of a pilot holding an airship pilot's licence, second class; and

(*b*) at least five flights in the capacity of a pilot holding an airship pilot's licence, second class, in an airship of greater capacity than 700,000 cubic feet, on which he handled the airship himself, under the supervision of the person in command of the airship, including departure and landing, during the whole flight if the duration thereof did not exceed four hours, and during at least four hours if the flight was of longer duration. Each flight must have been of at least one hour's duration with a minimum of fifteen hours for the five flights.

Technical Examination

149. The applicant shall, subject to the provisions of Regulation 151, be required to undergo an examination (including practical tests) to demonstrate that he has an advanced knowledge of the examination subjects specified for a third class licence.

Flying Experience for Renewal of Licence

150. An applicant for the renewal of a licence shall be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot of airships during the two years immediately preceding the date of the application. In default of such evidence the applicant may be required to undergo all or any part of the practical flying tests and technical examination specified for the grant of a licence, as the Minister may consider appropriate in the circumstances of the case.

Exemption for Military Pilots

151. An applicant who has at any time qualified as a pilot of airships in any of His Majesty's air forces may, at the discretion of the Minister and according to the applicant's qualifications and experience, be exempted from all or any part of the technical requirements applicable to the class of licence to which the application relates.

COMMERCIAL PILOT'S LICENCE (SOARING GLIDERS)

Age of Applicant and Period of Licence

152.—(1) An applicant for the grant of a commercial pilot's licence (soaring gliders) must be not less than 19 years of age.

(2) The period for which a licence may remain in force, following either the grant or any renewal thereof, shall not exceed six months.

Aircraft Rating

153. A licence shall include an aircraft rating specifying the types of gliders which, subject to Regulation 154, the holder is entitled to fly.

Privileges attaching to Licence

154. The licence shall entitle the holder to fly as pilot in charge or as second pilot of

(*a*) any type of glider of which the maximum total weight authorised does not exceed 1,250 lb.; and

(*b*) any type of glider exceeding the above weight if such type is specified in the licence.

Technical Requirements for Grant of Licence

Flying Experience

155. The applicant shall be required to produce satisfactory evidence that he has had at least 50 hours' flying experience (i.e. in free flight, not towed flight) as pilot in charge of a glider, including 25 winch launchings and 10 completed aero-tow launchings, of which not less than 3 hours, including 10 winch launchings and 3 completed aero-tow launchings, must have been carried out during the twelve months immediately preceding the date of the application.

Practical Flying Tests

156. (i) The applicant shall, subject to the provisions of Regulation 158, be required to undergo the following practical tests in a glider of which the maximum total weight authorised does not exceed 1,250 lb. :—

(*a*) a free flight of not less than one minute's duration in the course of which the candidate shall manoeuvre the glider so that its flight path is in the form of the letter " S ", followed by a normal landing ;

(*b*) a free flight, during which height is not lost over a continuous period of at least five minutes, followed by a landing made within 100 yards of a point fixed beforehand by the candidate. A barograph chart endorsed by a Royal Aero Club Observer will be accepted as evidence as an alternative to visual observation of the flight but not of the landing ;

(*c*) two winch launchings ; and

(*d*) two completed aero-tow launchings.

(ii) Where the application relates to a glider of which the maximum total weight authorised exceeds 1,250 lb. the applicant may be required to undergo such flying tests as the Minister may consider appropriate in the particular case.

(iii) The tests shall be subject to the following conditions :—

(*a*) the candidate shall be alone in the glider ;

(*b*) the tests may be carried out in any order ;

(*c*) the tests shall be carried out within a maximum period of six months or within such longer period as may be authorised by the Minister ;

(*d*) the tests shall be witnessed by properly accredited examiners who shall deposit their reports with the appropriate authorities. The reports shall give full details of the flights and particularly of the landings ; and

(*e*) the candidate shall, before each test, furnish the examiners with proof of his identity.

Technical Examination

157. The applicant shall, subject to the provisions of Regulation 158, be required to undergo an examination as to his practical knowledge of aviation law, with particular reference to the Order and the Regulations issued thereunder, also knowledge of any information notified with respect to the responsibilities of a pilot.

Exemptions

158. At the discretion of the Minister—

(i) an applicant who is the holder of a commercial pilot's licence (trailing gliders) may be exempted from the above technical examination ;

(ii) an applicant who is the holder of a flying machine pilot's licence may be exempted from the above technical examination ;

(iii) an applicant who produces satisfactory evidence that he has at any time been employed as a pilot in any of His Majesty's air forces may, according to his qualifications and his experience in respect of soaring flight, be exempted from the above practical flying tests ; and

(iv) an applicant who holds a British Gliding Association Gliding Certificate issued within the period of two years immediately preceding the date of the application may be exempted from the technical examination referred to in Regulation 157 and from the flying tests specified at (*a*) and (*b*) in paragraph (i) of Regulation 156.

Flying Experience for Renewal of Licence

159. An applicant for the renewal of a licence shall be required to produce satisfactory evidence that he has carried out as pilot in charge of a glider not less than two hours' flying during the twelve months immediately preceding the date of the application, or, in default thereof, to carry out the practical flying tests specified in Regulation 156.

COMMERCIAL PILOT'S LICENCE (TRAILING GLIDERS)

Age of Applicant and Period of Licence

160.—(1) An applicant for the grant of a commercial pilot's licence (trailing gliders) must be not less than 19 years of age.

(2) The period for which a licence may remain in force, following either the grant or any renewal thereof, shall not exceed six months.

Aircraft Rating

161. A licence shall include an aircraft rating specifying the types of gliders which, subject to Regulation 162, the holder is entitled to fly.

Privileges attaching to Licence

162. The licence shall entitle the holder to fly as pilot in charge or as second pilot of any public transport or aerial work glider, of such type as may be specified in the licence, of which the maximum total weight authorised exceeds 1,250 lb.

Technical Requirements for Grant of Licence

Flying Experience

163. The applicant shall, subject to the provisions of Regulation 166, be required to produce satisfactory evidence that he has had not less than 200 hours' flying experience, of which not less than 100 hours must have been as pilot in charge of gliders or flying machines, including not less than 30 hours' flying as pilot in charge of a glider, during which the applicant must have carried out 80 take-offs and 80 landings, five of which take-offs and landings must have been made by night. Of this 30 hours' flying not less than 10 hours' must have been carried out during the six months immediately preceding the date of the application:

Provided that, in the case of an applicant who has passed an approved course of flying training, the said requirement of 200 hours' flying experience may, at the discretion of the Minister, be reduced to 150 hours.

Practical Flying Tests

164. The applicant shall, subject to the provisions of Regulation 166, undergo such practical flying tests as the Minister may require.

Technical Examination

165. The applicant shall, subject to the provisions of Regulation 166, be required to undergo an examination (including practical tests) as to his knowledge of the following subjects:—

(*a*) aviation law;

(*b*) air navigation;

(*c*) meteorology;

(*d*) interpretation of navigational aid identification signals;

(*e*) theory of flight and aircraft operating limitations;

(*f*) aircraft equipment and installations;

(*g*) airframe maintenance.

Exemptions

166.—(1) At the discretion of the Minister—

(i) an applicant who is the holder of a commercial, senior commercial or airline transport pilot's licence (flying machines), may, according to his qualifications, be exempted from all or any part of the practical flying tests and technical examination required by Regulations 164 and 165.

(ii) an applicant who produces satisfactory evidence that he has at any time been employed as a pilot of gliders in any of His Majesty's air forces may, according to his qualifications and experience, be exempted from all or any of the above requirements as to flying experience and practical tests, and from the technical examination, except as regards the examination subject specified at (*a*) in Regulation 165;

(iii) an applicant who does not satisfy the night flying requirements specified in Regulation 163 or which may be required under Regulation 164 may be accepted as eligible for the grant, renewal or extension of a commercial pilot's licence (trailing gliders) restricted to flights between sunrise and sunset within the United Kingdom; and

(2) Any exemption granted in accordance with the provisions of sub-paragraphs (i) and (ii) of paragraph (1) of this Regulation may be made conditional upon the satisfactory completion of a special flying test.

Flying Experience for Renewal of Licence

167. An applicant for the renewal of a licence shall be required to produce satisfactory evidence that he has had reasonable flying experience as pilot of a glider during the six months immediately preceding the date of the application. In default thereof he may, at the discretion of the Minister, be required to undergo all or any part of the practical flying tests and technical examination specified for the grant of a licence.

Extension of Licence

168. An applicant for the extension of a licence to include the flying of an additional type of glider shall normally be required to pass practical flying tests and a technical examination on the type of glider to which the application relates.

Flight Navigator's Licence

Age of Applicant and Period of Licence

169.—(1) An applicant for the grant of a flight navigator's licence must be not less than 21 years of age.

(2) The period for which a licence may remain in force, following either the grant or any renewal thereof, shall not exceed twelve months.

Privileges attaching to Licence

170. The licence shall entitle the holder to act as flight navigator in any aircraft.

Technical Requirements for Grant of Licence

Flying Experience

171. The applicant shall, subject to the provisions of Regulation 174, be required to produce satisfactory evidence that he has

(*a*) carried out in the capacity of flight navigator not less than 200 hours' cross-country flying, 50 hours of which must have been carried out during the twelve months immediately preceding the date of the application, and including not less than 50 hours' night flying; and

(*b*) made during flight not less than 25 celestial observations by day and not less than 25 celestial observations by night and has applied the results of such observations to the navigation of the aircraft:

Provided that, at the discretion of the Minister—

(i) in the case of an applicant who has passed an approved course of training as a flight navigator, the requirements as to flying experience specified at (*a*) above may be reduced to such extent as the Minister may think fit;

(ii) in the case of an applicant who holds a Ministry of Transport certificate of competency (or its naval equivalent) as master or mate of a foreign-going vessel, the requirement of 200 hours' flying specified at (*a*) above may be reduced to 100 hours; and

(iii) in the case of an applicant who has had flying experience as a pilot of public transport aircraft, one half of such experience, up to a minimum of 100 hours, may be reckoned towards the said requirement of 200 hours' flying.

Technical Examination

172. The applicant shall, subject to the provisions of Regulation 174, be required to undergo an examination (including practical tests) as to his knowledge of the following subjects:—

(*a*) aviation law, in so far as it affects the responsibilities of a flight navigator;

(*b*) air navigation, including the interpretation of navigational aid identification signals; and

(*c*) meteorology.

173. The details of the technical examination and the requirements as to the evidence to be furnished of flying experience are specified in M.C.A. Pamphlet No. 40, "Flight Navigator's Licence", copies of which may be obtained on application to the Secretary, Ministry of Civil Aviation, London, W.C.2.

Exemptions

174. At the discretion of the Minister, an applicant who has at any time qualified as a flight navigator in any of His Majesty's air forces may, according to his qualifications and experience as flight navigator, be exempted from all or any of the requirements specified in Regulations 171 and 172.

Renewal of Licence

175. An applicant for the renewal of a licence shall be required to produce satisfactory evidence that he has had reasonable experience in the navigation of aircraft during the twelve months immediately preceding the date of the application. In default thereof the applicant shall, at the discretion of the Minister, be required either to—

(*a*) undergo further training in navigational duties in aircraft under the supervision of a person who is the holder of a flight navigator's licence ; or

(*b*) undergo all or any part of the technical examination specified for the grant of a licence.

FLIGHT NAVIGATOR'S LICENCE, CADET CLASS

Age of Applicant and Period of Licence

176.—(1) An applicant for the grant of a flight navigator's licence, cadet class, must be not less than 18 years of age.

(2) The period for which a licence may remain in force, following either the grant or any renewal thereof, shall not exceed twelve months.

Requirements for Grant of Licence

177. The applicant shall be required to produce satisfactory evidence that he requires such licence for the purpose of enabling him to obtain, under the supervision of a person who is the holder of a flight navigator's licence, training in navigational duties during flight. A certificate furnished by an air transport undertaking certifying that the applicant has been accepted for training in navigational duties in aircraft operated by that undertaking will be regarded as satisfactory evidence. In any other case, evidence as to the means by which it is proposed to obtain such training shall be submitted by the applicant for the consideration of the Minister.

Renewal of Licence

178. An applicant for the renewal of a licence shall be required to produce satisfactory evidence (similar to that specified for the grant of a licence) that he requires such renewal for the purpose of enabling him to obtain further training in navigational duties during flight.

FLIGHT ENGINEER'S LICENCE

Age of Applicant and Period of Licence

179.—(1) An applicant for the grant of a flight engineer's licence must be not less than 21 years of age.

(2) The period for which a licence may remain in force, following either the grant or any renewal thereof, shall not exceed twelve months.

Privileges attaching to Licence

180. The licence shall entitle the holder to act as flight engineer in any type of aircraft specified in the aircraft rating included in the licence.

Technical Requirements for Grant of Licence

Aeronautical and flying experience

181. The applicant shall, subject to the provisions of Regulation 183, be required to produce satisfactory evidence that he

(*a*) has had at least 50 hours' experience in flight engineering duties on board the type of aircraft to which the application relates, or one of similar characteristics, during the twelve months immediately preceding the date of the application ; and

(*b*) has demonstrated in flight to the satisfaction of the pilot in charge of an aircraft of the type to which the application relates, or one of similar characteristics, his practical knowledge of emergency procedures and his ability to take appropriate action in the event of any engine failure occurring, particularly during landings and take-offs.

Technical Examination

182. The applicant shall, subject to the provisions of Regulation 183, be required to undergo an examination as to his knowledge of the following subjects, which examination will have reference to the type of aircraft to which the application relates:—

(*a*) international air legislation ;

(*b*) the Order, the Regulations issued thereunder, and the requirements laid down in "British Civil Airworthiness Requirements" published by the Board, in so far as they affect the responsibilities of a flight engineer ;

(*c*) the theory of flight and aerodynamics ;

(*d*) various terms and definitions used in the operation of aircraft ;

(*e*) general knowledge of the maintenance and functioning of airframes, power plants and related appliances ;

(*f*) general knowledge of aircraft operation and maintenance and a detailed knowledge of the manual or manuals relating to the type of aircraft to which the application relates or one of similar characteristics ;

(*g*) methods of effecting in flight minor repairs, adjustments and replacements ;

(*h*) aircraft performance with respect to speed limitations, and the procedure to be followed in case of emergency, particularly in the event of fire in the air or power plant failure ;

(*i*) flight planning based on loading and performance charts, fuel consumption and engine power curves. Control of power output and the mathematical computations involved ;

(*j*) general knowledge of varying meteorological conditions and their effect on power plant operations ;

(*k*) aircraft loading and centre of gravity computations ;

(*l*) types of fuel and oil and fuelling procedure ; and

(*m*) the preparation of reports, illustrated by sketches, if necessary, describing the replacement or repair required in case of damage.

Exemptions

183. An applicant who has at any time served as a flight engineer in any of His Majesty's air forces, may, at the discretion of the Minister and according to the applicant's qualifications and experience, be exempted from all or any of the requirements specified in Regulations 181 and 182.

Renewal of Licence

184. An applicant for the renewal of a licence shall be required to produce satisfactory evidence that he has had reasonable experience in flight engineering duties during the twelve months immediately preceding the date of the application, including experience on board each type of flying machine for which the renewal is desired. In default of such evidence the applicant may be required to satisfy all or any of the requirements specified for the grant or extension of a licence as the Minister may consider appropriate in the circumstances of the case.

Extension of Licence

185. An applicant for the extension of the aircraft rating of a licence to include an additional type of aircraft shall be required to satisfy the requirements specified in Regulation 181. He may also, at the discretion of the Minister, be required to undergo all or any part of the technical examination specified in Regulation 182.

Flight Engineer's Licence, Cadet Class

Age of Applicant and Period of Licence

186.—(1) An applicant for the grant of a flight engineer's licence, cadet class, must be not less than 20 years of age.

(2) The period for which a licence may remain in force, following either the grant or any renewal thereof, shall not exceed twelve months.

Requirements for Grant of Licence

187. The applicant shall be required to produce satisfactory evidence that he requires such licence for the purpose of enabling him to obtain, under the supervision of a person who is the holder of a flight engineer's licence, training in engineering duties during flight. A certificate furnished by an air transport undertaking certifying that the applicant has been accepted for training in engineering duties in aircraft operated by that undertaking will be regarded as satisfactory evidence. In any other case, evidence as to the means by which it is proposed to obtain such training shall be submitted by the applicant for the consideration of the Minister.

Renewal of Licence

188. An applicant for the renewal of a licence shall be required to produce satisfactory evidence (similar to that specified for the grant of a licence) that he requires such renewal for the purpose of enabling him to obtain further training in engineering duties during flight.

Medical Requirements

189. A person applying for the grant or renewal of a licence to act as a member of the operating crew of an aircraft shall be required to undergo a medical examination to ascertain whether his physical condition conforms with the standard of fitness, i.e., physical, visual, colour perception and hearing, applicable to the case, as specified in Regulation 195. The examination will be based upon the requirements specified in Regulations 198 to 212:

Provided that

(i) an applicant who does not satisfy the appropriate medical requirements may, at the discretion of the Minister, be accepted as eligible

for the grant or renewal of a licence so far as medical requirements are concerned if the licence is to be restricted to flying within the United Kingdom. Any licence granted or renewed in accordance with this proviso may be made subject to such conditions and restrictions as the Minister may consider appropriate in the particular case;

(ii) if an applicant for the renewal of a licence is for the time being on duty as a member of the operating crew of an aircraft in a region distant from official medical centres the medical examination which he should normally pass to obtain renewal of the licence may exceptionally, at the discretion of the Minister,—

(*a*) be deferred once for a period of six months in the case of a member of the operating crew of a private aircraft; or

(*b*) be deferred for two consecutive periods of three months each in the case of a member of the operating crew of a public transport or aerial work aircraft, on condition that the applicant obtains locally on each occasion a satisfactory medical certificate after having been examined by a qualified medical officer.

190. The medical examinations, excepting, however, the examination referred to in proviso (ii) to Regulation 189, shall be carried out as follows:—

(*a*) in the case of a private pilot's licence (flying machines) or a private pilot's licence (balloons), the examination shall be carried out by a duly qualified medical practitioner, who may be the applicant's usual medical attendant. It shall be conducted in accordance with M.C.A. Form 541 (Initial Examination) or M.C.A. Form 542 (Renewal Examination), and a copy of the appropriate form, completed as required, shall be forwarded by the medical examiner to the Secretary, Ministry of Civil Aviation, London, W.C.2 (by whom copies of the forms will be supplied on request);

(*b*) in the case of a commercial pilot's licence (flying machines), a senior commercial pilot's licence (flying machines), an airline transport pilot's licence (flying machines), a flight navigator's licence, a flight navigator's licence, cadet class, a flight engineer's licence, a flight engineer's licence, cadet class, a commercial pilot's licence (soaring gliders), a commercial pilot's licence (trailing gliders), a commercial pilot's licence (balloons), and an airship pilot's licence, third class, second class or first class, the medical examination shall be conducted by specially qualified medical officers appointed by or acting under the authority of the Minister. Applications for examination should be made to the Secretary, Ministry of Civil Aviation, London, W.C.2.

191. Every applicant who presents himself for medical examination for the grant or renewal of a licence shall be required to furnish to the medical examiner a declaration signed by him stating whether he has previously undergone such medical examination and, if so, where, when and with what result. A false declaration may entail the cancellation of any licence granted or renewed as a result of the examination.

192. If the holder of a licence is aware, or has reasonable grounds to suspect, that his physical, aural or eye condition has deteriorated in any respect, even if only temporarily as the result of a common minor ailment, so that it may be below the standard of medical fitness required for the grant of such a licence, he shall not act in any capacity for which he is so licensed until he is satisfied that his condition has been restored to the required standard.

193.—(1) If the holder of a licence

(*a*) suffers any personal injury as the result of an accident occurring while he is acting in any capacity for which he is licensed ;

(*b*) suffers any personal injury involving incapacity for work as the result of an accident occurring otherwise than while he is acting in any capacity for which he is licensed ;

(*c*) suffers from any illness involving incapacity for work during twenty days or more ;

he shall send notification of the occurrence, in writing, to the Secretary, Ministry of Civil Aviation, London, W.C.2, as soon as possible in the case of accident and, in the case of illness, as soon as the period of twenty days has elapsed.

(2) The holder of a licence may, after suffering any such personal injury or illness, be required to undergo a full or partial medical examination. He shall not, therefore, resume acting in any capacity for which he is licensed until he has arranged for a medical report, detailing the nature of the injury or illness, the treatment received, the progress made whilst under treatment and his present condition, to be forwarded to the Ministry of Civil Aviation and has, in the light of such report, either been examined and pronounced fit or has been informed by the Ministry that an examination is not required.

(3) Pregnancy shall be regarded as incapacitating the holder of a licence from carrying out flying duties. As soon as the condition has been diagnosed the holder of a licence shall cease flying and shall not again fly until she has, in due course, been examined and pronounced fit.

(4) Whenever the holder of a licence has performed a total of 125 hours' flying in the capacity of a member of the operating crew of flying machines or gliders within any period of thirty consecutive days since his last medical examination under these Regulations, he shall not continue to act in that capacity until he has been re-examined and pronounced fit:

Provided that, in exceptional circumstances, relaxations of the requirements of this sub-paragraph may be made at the discretion of the Minister.

194. The medical examinations required for the purpose of Regulation 193 shall conform with the same conditions and standards as for the grant or renewal of a licence, except, however, as provided in proviso (ii) to Regulation 189.

Standards of Fitness

195. The standards of fitness appropriate to the various classes of licences are as set out below :—

(a) *Private Pilot's Licence* (*Flying Machines*)

Physical Standard	No. 3
Visual Standard	No. 3
Colour Perception Standard	No. 2
Hearing Standard	No. 4

(b) *Commercial Pilot's Licence* (*Flying Machines*)

Physical Standard	No. 2
Visual Standard	No. 1
Colour Perception Standard	No. 2
Hearing Standard	No. 3.

(c) *Senior Commercial Pilot's Licence (Flying Machines)*

Physical Standard	No. 1
Visual Standard	No. 1
Colour Perception Standard	No. 2
Hearing Standard	No. 1

(d) *Airline Transport Pilot's Licence (Flying Machines)*

Physical Standard	No. 1
Visual Standard	No. 1
Colour Perception Standard	No. 2
Hearing Standard	No. 1

(e) *Private Pilot's Licence (Balloons)*

Physical Standard	No. 3
Visual Standard	No. 3
Colour Perception Standard	No. 2
Hearing Standard	No. 4

(f) *Commercial Pilot's Licence (Balloons)*

Physical Standard	No. 2
Visual Standard	No. 3
Colour Perception Standard	No. 2
Hearing Standard	No. 4

(g) *Airship Pilot's Licence, Third Class and Second Class*

Physical Standard	No. 2
Visual Standard	No. 3
Colour Perception Standard	No. 2
Hearing Standard	No. 4

(h) *Airship Pilot's Licence, First Class*

Physical Standard	No. 2
Visual Standard	No. 3
Colour Perception Standard	No. 2
Hearing Standard	No. 4

(i) *Commercial Pilot's Licence (Soaring Gliders)*

Physical Standard	No. 2
Visual Standard	No. 1
Colour Perception Standard	No. 2
Hearing Standard	No. 3

(j) *Commercial Pilot's Licence (Trailing Gliders)*

Physical Standard	No. 2
Visual Standard	No. 1
Colour Perception Standard	No. 2
Hearing Standard	No. 3

(k) *Flight Navigator's Licence and Flight Navigator's Licence, Cadet Class*

Physical Standard	No. 2
Visual Standard	No. 2
Colour Perception Standard	No. 2
Hearing Standard	No. 3

(l) *Flight Engineer's Licence and Flight Engineer's Licence, Cadet Class*

Physical Standard	No. 2
Visual Standard	No. 2
Colour Perception Standard	No. 2
Hearing Standard	No. 3

196. A person who is the holder of a flying machine pilot's licence (private or commercial) and who has been granted, or makes application for, an instrument rating shall be required to satisfy Hearing Standard No. 1.

197. Where an applicant for the grant or renewal of a licence or for the inclusion in a licence or the renewal of a rating for which Hearing Standard No. 1 is required fails to satisfy that standard the licence or rating may nevertheless be granted, included or renewed, as the case may be, if the applicant either—

(*a*) satisfies Hearing Standard No. 2; or

(*b*) demonstrates his ability, under practical or simulated practical conditions, to receive spoken messages by radio telephony accurately in a complex noise background of an intensity level of not less than 100 decibels, the intensity level of the spoken messages being 8 decibels above the intensity level of the background noise;

and the Minister is satisfied that the applicant, by reason of his experience in radio reception, can competently perform the duties for which a licence or rating is desired.

PHYSICAL REQUIREMENTS

198. *Physical Standard No.* 1.—The medical examination and assessment will be based on the following requirements of mental and physical fitness :—

(*a*) The applicant shall be required to have adequate functional use of his four limbs and to be free from any active or latent, acute or chronic, physical disability, that would entail any degree of functional incapacity which is considered by the medical examiner likely to interfere with the safe handling of an aircraft at any altitude throughout a prolonged or difficult flight.

(*b*) The medical examination will include a full enquiry into the family and personal history of the applicant. The information obtained shall be given in a statement made and signed by him and will be taken into consideration by the medical examiner.

(*c*) *Examination of the nervous system.*—The applicant shall have no history of significant mental or nervous trouble. He shall be required to be free from any mental impairment, pathological tremor, 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 considered by the medical examiner to be of sufficient degree as likely to interfere with the safe handling of an aircraft. Cases in which syphilis, past or present, has affected the central nervous system will be assessed as permanently unfit.

As to injuries of the head—

(i) Cases of simple concussion, or simple fracture of the skull without associated intracranial injury, will be assessed as temporarily unfit for a period of not less than two months from the date of the concussion or fracture. When the licence is renewed, it will be made valid only for a period of two months in the first instance. Thereafter its validity will be restricted to consecutive periods of two months until the medical examiner reports he has good reason to presume that the after-effects of the concussion or fracture are no longer likely to cause a sudden incapacity in flight;

(ii) Cases of head injury associated with intracranial injuries will be assessed as permanently unfit if a local lesion of the brain persists;

(iii) 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 will be assessed as permanently unfit;

(iv) Cases of head injury associated with a lesion of the dura mater will be assessed as permanently unfit even if a bone graft has been done.

(*d*) *General surgical examination.*—The applicant shall neither suffer from any wound or injury, nor have undergone any operation, nor possess any abnormality, congenital or acquired, which is considered by the medical examiner likely to interfere with the safe handling of an aeroplane at any altitude throughout a prolonged or difficult flight. He shall be required to be completely free from hernia.

Cases in which there is any significant anatomical or functional lesion in the walls of any part of the digestive tract, any stricture, any calculus or foreign body, any significant peritoneal lesion, established by clinical or laboratory examination, will be assessed as unfit. An applicant who has undergone a major surgical operation on the biliary passages or the digestive tract, except for appendicitis, which has involved a total or partial excision or a diversion of any of these organs will be assessed as unfit unless a period of one year has elapsed since the surgical operation and the effects of the operation are not considered liable to cause sudden incapacity in the air, provided that this period of one year may be shortened on the production of an attestation made by a surgeon having knowledge of the nature of the disease which necessitated the operation, certifying that no immediate or future after-effects are to be feared.

(*e*) *General medical examination.*—The applicant shall not suffer from any disease or disability which renders him liable suddenly to become unable to handle aircraft safely.

The heart shall be normal. Cases in which there is arrhythmia associated with a liability to giddiness will be assessed as unfit. 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.

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

There shall be no signs of aneurism of the large arterial trunks.

There shall be no acute disability of the lungs nor any active disease of the structures of the lungs, mediastinum or pleura. In the case of an examination for the first grant of a licence, radioscopy will form a part of the chest examination. Radiography will form a part of the medical examination in all doubtful clinical cases.

Cases of active pulmonary tuberculosis, however diagnosed, will 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. Cases of doubt about the activity of a lesion, where symptoms of activity of the disease are lacking, clinically, will 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 will 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 applicant may be assessed as fit but, where the licence is renewed in these circumstances, it will be made valid only for a period of three months in the first instance. 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 will be restricted to consecutive periods of three months. When the applicant 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 will be regarded as " quiescent " or " healed ".

Cases of pulmonary emphysema will not be assessed as unfit unless the condition is causing symptoms.

Cases of disease of, or of significant impairment of the functioning of the liver, biliary passages or pancreas will be assessed as unfit. Cases of diabetes will also be assessed as unfit.

Cases of severe and moderate enlargement of the spleen persistently below the costal margin will be assessed as unfit. Cases of generalized enlargement of the lymphatic glands and of diseases of the blood will be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit.

Cases presenting any signs of organic disease of the kidneys will be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit. The urine shall contain no pathological element. Cases of affections of the urinary passages and of the genital organs will be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit. Cases of tuberculous epididymitis, in its mild and localized form, may be assessed as fit.

An applicant for the first grant 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; this evidence shall include the result of an examination of the blood and of the cerebro-spinal fluid. An applicant showing any clinical signs of active syphilis will 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, provided the applicant furnishes proof, satisfactory to the medical examiner, that he has undergone adequate treatment in the interim and that the serological reaction for syphilis is negative, he may be assessed as fit, but where a licence is granted or renewed in these circumstances it will be made valid only for a period of three months in the first instance. Thereafter, provided serological reactions for syphilis continue to be negative at the end of each three months' period, the validity of the licence will be restricted to consecutive periods of three months. When the applicant has been under observation under this scheme for a total period of at least three years and the serological reactions have continued to be negative, the restriction on the period of validity of the licence may be removed. In cases where the serological reaction for syphilis remains persistently positive, examinations of the cerebro-spinal fluid at the end of each period of six months with negative results may be accepted in lieu of negative serological reactions at the end of each period of three months. Any evidence of syphilis of the central nervous system will be confirmed by the result of an examination of the cerebro-spinal fluid.

The cases of applicants of the female sex who have undergone gynaecological or other surgical operations will be considered individually. In the event of presumed pregnancy the applicant will be assessed as temporarily unfit until, at least, after the pregnancy has been terminated; after confinement or miscarriage the applicant will not be permitted to exercise the privileges of her licence until she has undergone a new medical examination and been assessed as fit.

(f) *Eye examination.*—There shall be no active pathological condition, acute or chronic, of either eye or adnexae which is considered likely by the medical examiner to interfere with its proper function.

(*Note:* The details of the Visual Requirements are specified in Regulations 201 to 204 and those for Colour Perception in Regulations 205 to 207.)

(g) *Ear examination.*—There shall be:—

(i) No active pathological process, acute or chronic, of the internal ear or middle ear cleft;
(ii) No unhealed (unclosed) perforation of the tympanic membrane;
(iii) No obstruction of the Eustachian tubes;
(iv) No disturbances of the vestibular apparatus.

(*Note:* The details of the Hearing Requirements are specified in Regulations 208 to 212.)

(h) *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.

199. *Physical Standard No. 2.*—The medical examination and assessment will be based on the following requirements of mental and physical fitness:—

(a) The applicant shall be required to be free from any congenital or acquired disability causing such degree of functional incapacity as is considered by the medical examiner likely to interfere, in the case of piloting, with the safe handling of an aircraft at any altitude throughout a prolonged or difficult flight or, in the case of flight crew members other than pilots, with the efficient performance of the duties to be carried out when exercising the privileges of the licence.

(b) The medical examination will include a full enquiry into the family and personal history of the applicant. The information obtained shall be given in a statement made and signed by him and will be taken into consideration by the medical examiner.

(c) *Examination of the nervous system.*—The applicant shall have no history of significant mental or nervous trouble. He shall be required to be free from any disability of the nervous system considered by the medical examiner to be of such degree as likely to interfere with efficient function during prolonged flight. Cases in which syphilis, past or present, has affected the central nervous system will be assessed as permanently unfit.

As to injuries of the head—

(i) Cases of simple concussion, or simple fracture of the skull without associated intracranial injury, will be assessed as temporarily unfit for a period of not less than two months from the date of the concussion or fracture. When the licence is renewed, it will be made valid only for a period of two months in the first instance. Thereafter its validity will be restricted to consecutive periods of two months until the medical examiner reports he has good reason to presume that the after-effects of the concussion or fracture are no longer likely to cause a sudden incapacity in flight;

(ii) Cases of head injury associated with intracranial injuries will be assessed as permanently unfit if a local lesion of the brain persists;

(iii) 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 will be assessed as permanently unfit;

(iv) Cases of head injury associated with a lesion of the dura mater will be assessed as permanently unfit even if a bone graft has been done.

(d) *General surgical examination.*—The applicant shall neither suffer from any wound or injury, nor have undergone any operation, nor possess any abnormality, congenital or acquired, which is considered by the medical examiner likely to interfere with the efficient performance of the duties to be carried out when exercising the privileges of the licence.

Cases in which there is any significant anatomical or functional lesion in the walls of any part of the digestive tract, any stricture, any calculus or foreign body, any significant peritoneal lesion, established by clinical or laboratory examinations, will be assessed as unfit. An applicant who has undergone a major surgical operation on the biliary passages or the digestive tract, except for appendicitis, which has involved a total or partial excision or a diversion of any of these organs will be assessed as unfit unless a period of one year has elapsed since the surgical operation and the effects of the operation are not considered liable to cause sudden incapacity in the air, provided that this period of one year may be shortened on the production of an attestation made by a surgeon having knowledge of the nature of the disease which necessitated the operation, certifying that no immediate or future after-effects are to be feared.

(e) *General medical examination.*—The applicant shall not suffer from any disease or disability which renders him liable suddenly to become incompetent in the performance of the duties to be carried out when exercising the privileges of the licence.

There shall be no significant cardiovascular abnormality. The systolic and diastolic blood pressures shall be within normal limits.

There shall be no acute disability of the lungs nor any active disease of the structures of the lungs, mediastinum or pleura. In the case of an examination for the first grant of a licence, radioscopy will form a part of the chest examination. Radiography will form a part of the medical examination in all doubtful clinical cases.

Cases of active pulmonary tuberculosis, however diagnosed, will 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. Cases of doubt about the activity of a lesion, where symptoms of activity of the disease are lacking, clinically, will 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 will 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 applicant may be assessed as fit but, where the licence is renewed in these circumstances, it will be made valid only for a period of three months in the first instance. 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

will be restricted to consecutive periods of three months. When the applicant 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 will be regarded as " quiescent " or " healed ".

Cases of disease of, or of significant impairment of the functioning of the liver, biliary passages or pancreas will be assessed as unfit. Cases of diabetes will also be assessed as unfit.

The applicant shall be required to be free from disease of the urogenital tract.

An applicant for the first grant 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; this evidence shall include the result of an examination of the blood and of the cerebro-spinal fluid. An applicant showing any clinical signs of active syphilis will 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, provided the applicant furnishes proof, satisfactory to the medical examiner, that he has undergone adequate treatment in the interim and that the serological reaction for syphilis is negative, he may be assessed as fit but where a licence is granted or renewed in these circumstances it will be made valid only for a period of three months in the first instance. Thereafter, provided serological reactions for syphilis continue to be negative at the end of each three months' period, the validity of the licence will be restricted to consecutive periods of three months. When the applicant has been under observation under this scheme for a total period of at least three years and the serological reactions have continued to be negative, the restriction on the period of validity of the licence may be removed. In cases where the serological reaction for syphilis remains persistently positive, examinations of the cerebro-spinal fluid at the end of each period of six months with negative results may be accepted in lieu of negative serological reactions at the end of each period of three months. Any evidence of syphilis of the central nervous system will be confirmed by the result of an examination of the cerebro-spinal fluid.

The cases of applicants of the female sex who have undergone gynaecological or other surgical operations will be considered individually. In the event of presumed pregnancy the applicant will be assessed as temporarily unfit until, at least, after the pregnancy has been terminated; after confinement or miscarriage the applicant will not be permitted to exercise the privileges of her licence until she has undergone a new medical examination and been assessed as fit.

(f) *Eye examination.*—There shall be no active pathological condition, acute or chronic, of either eye or adnexae which is considered likely by the medical examiner to interfere with its proper function.

(*Note :* The details of the Visual Requirements are specified in Regulations 201 to 204 and those for Colour Perception in Regulations 205 to 207.)

(g) *Ear examination.*—There shall be :—

(i) No active pathological process, acute or chronic, of the internal ear or middle ear cleft;

(ii) No unhealed (unclosed) perforation of the tympanic membrane;

(iii) No obstruction of the Eustachian tubes ;

(iv) No disturbances of the vestibular apparatus.

(*Note :* The details of the Hearing Requirements are specified in Regulations 208 to 212.)

(h) *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.

200. *Physical Standard No.* 3.—The medical examination and assessment will be based on the following requirements of mental and physical fitness :—

(*a*) The applicant shall be required to be free from any congenital or acquired disability causing such degree of functional incapacity as is considered by the medical examiner likely to interfere with the safe handling of an aircraft under ordinary conditions or, in the cases of persons other than pilots, with the efficient performance of the duties to be carried out when exercising the privileges of the licence.

(*b*) The medical examination will include a full enquiry into the family and personal history of the applicant. The information obtained shall be given in a statement made and signed by him and will be taken into consideration by the medical examiner.

(*c*) *Examination of the nervous system.*—The applicant shall have no history of significant mental or nervous trouble. He shall be required to be free from any disability of the nervous system considered by the medical examiner to be of sufficient degree as likely to interfere with efficient function.

(*d*) *General surgical examination.*—The applicant shall neither suffer from any wound or injury, nor have undergone any operation, nor possess any abnormality, congenital or acquired, which is considered by the medical examiner likely to interfere with the efficient performance of the duties to be carried out when exercising the privileges of the licence.

An applicant who has undergone a major surgical operation on the biliary passages or the digestive tract, except for appendicitis, which has involved a total or partial excision or a diversion of any of these organs, will be assessed as unfit unless a period of one year has elapsed since the surgical operation and the effects of the operation are not considered liable to cause sudden incapacity, provided that this period of one year may be shortened on the production of an attestation made by a surgeon, having knowledge of the nature of the disease which necessitated the operation, certifying that no immediate or future after-effects are to be feared.

(*e*) *General medical examination.*—The applicant shall not suffer from any disease or disability which renders him liable suddenly to become incompetent in the performance of the duties to be carried out when exercising the privileges of the licence.

There shall be no significant cardiovascular abnormality. The systolic and diastolic blood pressures shall be within normal limits.

There shall be no acute disability of the lungs nor any active disease of the structures of the lungs, mediastinum or pleura.

Cases showing significant impairment of function of the liver, the biliary passages, or the pancreas will be assessed as unfit. Cases of diabetes will also be assessed as unfit.

The applicant shall be required to be free from disease of the urogenital tract.

An applicant for the first grant 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; this evidence shall include the result of an examination of the blood and of the cerebrospinal fluid. An applicant showing any clinical signs of active syphilis will 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, provided the applicant furnishes proof, satisfactory to the medical examiner, that he has undergone adequate treatment in the interim and that the serological reaction for syphilis is negative, he may be assessed as fit but, where a licence is granted or renewed in these circumstances, it will be made valid only for a period of three months in the first instance. Thereafter, provided serological reactions for syphilis continue to be negative at the end of each three months' period, the validity of the licence will be restricted to consecutive periods of three months. When the applicant has been under observation under this scheme for a total period of at least three years and the serological reactions have continued to be negative, the restriction on the period of validity of the licence may be removed. In cases where the serological reaction for syphilis remains persistently positive, examinations of the cerebro-spinal fluid at the end of each period of six months with negative results may be accepted in lieu of negative serological reactions at the end of each period of three months. Any evidence of syphilis of the central nervous system will be confirmed by the result of an examination of the cerebro-spinal fluid.

The cases of applicants of the female sex who have undergone gynaecological or other surgical operations will be considered individually. In the event of presumed pregnancy the applicant will be assessed as temporarily unfit until, at least, after the pregnancy has been terminated; after confinement or miscarriage the applicant will not be permitted to exercise the privileges of her licence until she has undergone a new medical examination and been assessed as fit.

(*f*) *Eye examination.*—There shall be no active pathological condition, acute or chronic, of either eye or adnexae which is considered likely by the medical examiner to interfere with its proper function.

(*Note:* The details of the Visual Requirements are specified in Regulations 201 to 204 and those for Colour Perception in Regulations 205 to 207.)

(g) *Ear examination.*—There shall be:—

(i) No active pathological process, acute or chronic, of the internal ear or middle ear cleft;

(ii) No obstruction of the Eustachian tubes;

(iii) No disturbances of the vestibular apparatus.

(*Note:* The details of the Hearing Requirements are specified in Regulations 208 to 212.)

(*h*) *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.

Visual Requirements

201. The measurement of visual acuity will be made by means of a series of optotypes of Landholt, or similar optotypes, illuminated at not less than twelve lux and not more than twenty lux, and placed at a distance of twenty feet from the applicant.

202. *Visual Standard No.* 1.—The applicant shall be required to have:

(*a*) A visual acuity of at least 6/9 (20/30) in each eye separately, without correction: provided that if the vision in either or both eyes is less than 6/9 (20/30) but not less than 6/18 (20/60) and can be brought up to 6/6 (20/20) or better in each eye by glasses, the applicant may be assessed as fit upon condition that correcting glasses are worn while exercising the privileges of the licence;

(*b*) not more than + 2.25 dioptres of hypermetropia, in the case of an applicant for the first grant of a licence;

(*c*) not more than 1 dioptre of hyperphoria in either eye;

(*d*) not more than 10 dioptres of esophoria;

(*e*) not more than 5 dioptres of exophoria;

(*f*) an accommodation of at least V = 1.00 at 12 inches (30 centimetres) with each eye separately without the use of correcting lenses: provided that, where the applicant is over forty years of age and already holds a licence, correcting glasses may be used to provide the same character of near vision;

(*g*) normal fields of vision.

203. *Visual Standard No.* 2.—The applicant shall be required to have:

(*a*) a visual acuity of at least 6/12 (20/40) in each eye separately, without correction: provided that

(i) in the case of an applicant for the first grant of a licence, if the vision in either or both eyes is less than 6/12 (20/40) but not less than 6/24 (20/80) and can be brought up to 6/6 (20/20) or better in each eye by glasses, the applicant may be assessed as fit upon condition that correcting glasses are worn while exercising the privileges of the licence; and

(ii) in the case of an applicant for the renewal of a licence, if the vision in either or both eyes is less than 6/12 (20/40) but not less than 6/60 (20/200) and can be brought up to 6/9 (20/30) or better in each eye by glasses, the applicant may be assessed as fit upon condition that correcting glasses are worn while exercising the privileges of the licence and that a second set of correcting glasses are carried on his person;

(*b*) normal fields of vision, due allowance being made, where errors of refraction exist, for those areas not covered by the correcting lenses.

204. *Visual Standard No.* 3.—The applicant shall be required to have:

(*a*) A visual acuity of at least 6/12 (20/40) in each eye separately, without correction: provided that if the vision in either or both eyes is less than 6/12 (20/40) but not less than 6/60 (20/200) and can be brought up to 6/9 (20/30) or better in each eye by glasses, the applicant may be assessed as fit upon condition that correcting glasses are worn while exercising the privileges of the licence;

(*b*) satisfactory ocular muscle balance;

(*c*) normal fields of vision, due allowance being made, where errors of refraction exist, for those areas not covered by the correcting lenses.

Colour Perception Requirements

205. The measurement of colour perception for Colour Perception Standard No. 1 should be made by means of pseudo-isochromatic plates or a suitable lantern. The measurement for Colour Perception Standard No. 2 should be made by means of a suitable lantern. When a lantern is used it should present the light, transmitted by coloured screens lighted at five lux, for one second and seen at a distance of twenty feet in an angle of three minutes.

206. *Colour Perception Standard No.* 1.—The applicant shall be required to have normal colour perception.

207. *Colour Perception Standard No.* 2.—The applicant shall be required to be able to distinguish easily signal red, signal green, and white.

Hearing Requirements

208. The measurement of the auditory acuity in the first three standards detailed below will be made by means of a standard pure tone audiometer in a quiet room, that is, a room in which the intensity of the background noise is less than fifty decibels as measured by a sound level meter.

209. *Hearing Standard No.* 1.—The applicant shall be required not to have a loss in either ear of more than twenty decibels at any one of the four frequencies, 500, 1,000, 2,000 and 3,000 cycles per second.

210. *Hearing Standard No.* 2.—The applicant shall be required not to have a loss in either ear of more than twenty decibels at any one of the three frequencies, 500, 1,000 and 2,000 cycles per second nor of more than forty decibels at the frequency of 3,000 cycles per second.

211. *Hearing Standard No.* 3.—The applicant shall be required not to have a loss in either ear of more than forty decibels at any one of the three frequencies, 500, 1,000 and 2,000 cycles per second.

212. *Hearing Standard No.* 4.—The applicant shall be required to be able to hear a conversational voice, using both ears and standing with his back towards the examiner, at a distance of ten feet from the examiner.

SECTION XIV

TOWING BY AIRCRAFT

General

213. With reference to Article 42 of the Order, application by the holder of a flying machine pilot's licence for a towing rating entitling the holder to fly flying machines towing gliders of which the maximum total weight authorised exceeds 1,250 lb. should be made in writing to the Secretary, Ministry of Civil Aviation, London, W.C.2.

214. Subject as hereinafter provided, an applicant for a towing rating shall be required to produce evidence of flying experience and undergo tests and examinations as specified in Regulation 216.

215. A towing rating shall not authorise the towing of a glider or gliders by more than one flying machine.

Requirements for Grant of Towing Rating

216.—(1) An applicant for a towing rating must be the holder of a commercial, senior commercial or airline transport pilot's licence (flying machines), granted under the provisions of the Order.

(2) The applicant shall be required to satisfy the requirements as to flying experience and undergo tests and examination as specified in sub-paragraphs (*a*), (*b*) and (*c*) below.

(*a*) *Flying Experience*

The applicant shall be required to produce satisfactory evidence that he has, during the twelve months immediately preceding the date of the application, carried out—

(i) as pilot in charge of a flying machine towing a glider, not less than five hours' flying, including at least ten flights, not less than three of which shall have been carried out at night; and

(ii) as pilot in charge of a glider towed by a flying machine and released therefrom, not less than three hours' flying, including at least ten flights, one of which shall have been carried out at night.

(*b*) *Practical Flying Tests*

Two flights as pilot in charge of a flying machine, of a type included in Group I of the aircraft rating of the applicant's licence, towing one or more gliders, during each of which flights the applicant shall, in accordance with a plan arranged beforehand, fly to the position where the glider or gliders are to be released, and after such release, drop the tow rope within the assigned area and land the flying machine at the assigned place.

In respect of one of these flights the total weight of the glider or gliders shall approximate to the maximum weight which the flying machine may be permitted to tow in the circumstances of the flight. The other flight shall be carried out at night and the position of release shall be when the flying machine is down wind of the place at which the glider or gliders are to land and is flying across wind at a suitable height above the level of that place.

The tests shall be subject to the following conditions:—

(i) The tests may be carried out in any order;

(ii) the tests shall be witnessed or conducted, as the case requires, by properly accredited examiners who shall deposit their reports with the appropriate authorities. The reports shall give full details of the flights, and in particular, of the landings; and

(iii) the applicant shall, before each test, furnish the examiners with proof of his identity.

(*c*) *Technical Examination*

(i) General knowledge of the procedure for towed flights, including the systems of intercommunication which may be used; the methods of towing; the effect of variation of load, and of wind and other meteorological conditions on gliding and towed flights; the principles governing the selection of landing grounds for gliders;

(ii) knowledge of the types of gliders approved for towing by such types of flying machines included in Group I of the aircraft rating of the applicant's licence as have been approved for towing; the flight characteristics of and the instruments prescribed for such types of gliders;

the permissible limits of loading for such combinations of flying machines and gliders; the types of tow rope which may be used; the methods of inspection of tow ropes and quick release devices;

(iii) practical knowledge of aviation law, with particular reference to the Order and the Regulations issued thereunder, also knowledge of any information notified with respect to the responsibilities of a pilot in towing operations:

Provided that—

(i) an applicant who is the holder of a commercial pilot's licence (trailing gliders) may be exempted from technical examination in the subjects specified in sub-paragraph (*c*) (i) and (iii) of this paragraph; and

(ii) an applicant who has at any time flown as a pilot of flying machines towing gliders in any of His Majesty's air forces may, according to his qualifications and experience, be exempted from all or any of the above requirements as to flying experience and practical flying tests, and from technical examination in the subjects specified in sub-paragraph (*c*) (i) and (ii) of this paragraph. Such exemption may be made conditional upon the satisfactory completion of a special flying test.

SECTION XV

INSTRUCTION IN FLYING

General

217. With reference to Article 23 of the Order, application for the inclusion in a licence, extension or renewal of a rating to give instruction in flying (i) flying machines, and (ii) gliders (of which the maximum total weight authorised exceeds 1,250 lb.) towed by flying machines, should be made in writing to the Secretary, Ministry of Civil Aviation, London, W.C.2. Such ratings may be included in a licence, extended or renewed in accordance with the requirements and conditions specified in this Section:

Provided that the requirements for the inclusion in a licence, extension or renewal of a rating to give instruction in the flying of flying machines other than aeroplanes (e.g. helicopters or gyroplanes), while generally as specified in this Section for flying machines, may be subject to such modifications as the Minister may consider appropriate in the particular case.

218. The examination and tests for the inclusion in a licence, extension or renewal of a rating to give instruction in flying shall be conducted by a panel of examiners approved by the Minister for the purpose, hereinafter referred to as " the examining body ". On each occasion before the inclusion in a licence, extension or renewal of any such rating a report shall be furnished to the Minister stating whether, in the opinion of the examining body, the applicant is qualified for the rating or for such extension or renewal, as the case may be.

219. The Minister may, upon production by the applicant of his pilot's licence and after consideration of the report furnished by the examining body, include in such licence a rating entitling the holder thereof to give instruction in flying in the capacity of Instructor or of Assistant Instructor, subject to such conditions as may be specified in the rating.

220. The period for which a rating to give instruction in flying may continue in operation, following either the inclusion in a licence or any renewal thereof, shall not exceed twelve months.

Flying Machines

Rating to act as Assistant Instructor

221.—(1) A rating to act in the capacity of Assistant Instructor may be included in a flying machine pilot's licence of any class and will be limited to particular classes and types of flying machines, having regard to the report of the examining body.

(2) A rating in respect of one or more classes or types of flying machines may be extended to cover the giving of instruction in flying additional classes or types on the Minister being furnished by the examining body with a satisfactory report that the applicant has produced such evidence and completed such examination and tests as may be appropriate in the circumstances of the case.

(3) Such a rating will be made valid only for the giving of instruction under the direction of a competent Instructor and will not authorise the holder to give directions to a pupil in regard to either the pupil's first solo flight or his first solo cross-country flight.

(4) An applicant for an Assistant Instructor's rating shall, subject to the provisions of Regulation 223, be required—

(*a*) to produce satisfactory evidence that he has carried out not less than 100 hours' flying as pilot in charge of a flying machine, of which not less than 30 hours shall have been carried out on the class of flying machine to which the application relates;

(*b*) to produce satisfactory evidence that he has passed a flying instructor's course the syllabus of which has been approved;

(*c*) to undergo an oral examination in the subjects of such a course;

(*d*) to undergo a flying test, with an approved examiner on board, for the purpose of determining the applicant's practical ability to act as an Assistant Instructor; and

(*e*) if the application relates to seaplanes—

(i) to undergo an oral examination for the purpose of determining his knowledge of the practical matters relating to the manoeuvring of seaplanes on the water; and

(ii) to undergo a test on a seaplane of the type or group to which the application relates, with an approved examiner on board, for the purpose of determining the applicant's practical ability to give instruction in the handling of such seaplane on the water.

Rating to act as Instructor

222.—(1) A rating to act in the capacity of Instructor may be included in a private, commercial, senior commercial or airline transport pilot's licence (flying machines) and will be limited to the giving of instruction on such types of flying machines, specified in the aircraft rating of the licence, as the holder is, by the terms of the licence, entitled to fly as pilot in charge.

(2) An applicant for an Instructor's rating shall, subject to the provisions of Regulation 223, be required—

(*a*) to produce satisfactory evidence that:—

(i) he has carried out not less than 400 hours' flying as pilot in charge of a flying machine, of which not less than 30 hours shall have been carried out on the class and type of flying machine to which the application relates;

(ii) his flying experience includes not less than 100 hours' flying in the capacity of Assistant Instructor;

(*b*) to undergo a flying test, with an approved examiner on board, for the purpose of determining the applicant's practical ability to act as an Instructor; and

(*c*) to satisfy the requirements for a rating to act as an Assistant Instructor specified in sub-paragraphs (*b*), (*c*) and, when applicable, (*e*) of paragraph (4) of Regulation 221.

223. An applicant who has qualified as an instructor in flying flying machines in any of His Majesty's air forces may, according to his qualifications and experience, be exempted from all or any of the requirements specified in paragraph (4) of Regulation 221 or paragraph (2) of Regulation 222. Such exemption may be made conditional upon the satisfactory completion of any part of the examinations and tests.

Gliders Towed by Flying Machines

224.—(1) An applicant for a rating to give instruction in flying gliders (of which the maximum total weight authorised exceeds 1,250 lb.) towed by flying machines shall be required—

(*a*) to produce satisfactory evidence that he has carried out not less than 400 hours' flying as pilot in charge of a glider or flying machine, of which—

(i) not less than 30 hours' flying and eighty landings shall have been carried out by him as pilot in charge of a glider; and

(ii) not less than 25 hours' flying, including five flights during which a glider has been towed by the flying machine and released therefrom, shall have been carried out by him as pilot in charge of a flying machine;

(*b*) to undergo an oral examination in the subjects of a gliding instructor's course conducted in accordance with an approved syllabus.

(2) In addition, the applicant may be required to undergo a flying test, on a flying machine or a glider towed by a flying machine, or on both, with an approved examiner on board, for the purpose of determining his practical ability to give instruction in flying gliders towed by flying machines:

Provided that an applicant (i) in whose licence there is included a rating to give instruction in flying flying machines, or (ii) who has qualified as an instructor in flying flying machines or gliders in any of His Majesty's air forces may, according to his qualifications and experience, be exempted from all or any of the requirements of this Regulation. Such exemption may be made conditional upon the satisfactory completion of a special examination or test.

SECTION XVI

CAPTIVE BALLOONS, KITES AND MOORED AIRSHIPS

General

225. With reference to Article 35 of the Order, application for permission

(*a*) to fly a captive balloon within the United Kingdom; or

(*b*) to fly a kite within the United Kingdom

(i) at an altitude exceeding 200 feet above ground level; or

(ii) at any altitude if it is to be flown within a distance of 3 statute miles from the boundary of an aerodrome; or

(*c*) to moor an airship at any place within the United Kingdom;

should be made to the Secretary, Ministry of Civil Aviation, London, W.C.2, and be accompanied by a map showing the exact position or positions at

which the aircraft is to be flown. The map should, if the application relates to a moored airship, or to a balloon or kite which is to be moored to a stationary object on the ground or water, be on a scale of not less than six inches to a mile.

226. An application in respect of a captive balloon should also include

(*a*) a description of the balloon and of the mooring cable and equipment to be used for operating it;

(*b*) particulars of the qualifications and experience of the persons to be employed in operating the balloon; and

(*c*) information as to the dates and times when and the purpose for which the balloon is to be flown.

227. The conditions normally attached to a permission given in respect of a captive balloon which is to be moored to a stationary object on the ground or water include the following:—

(*a*) the flying ground from which the balloon is flown shall be such that in every direction from the winch to which the cable of the balloon is attached there is a distance free from obstruction of at least 100 yards or such less distance as the Minister may specify in the case of a balloon other than a spherical balloon;

(*b*) the balloon shall not be left unattended either by day or night unless it has been hauled down, and either has been "bagged" down or has had its ripping panel made fast to the ground;

(*c*) the balloon shall be securely and adequately moored and the mooring cable, and winch, if any, shall be approved.

Lighting and Marking

228.—(1) The following conditions as to lighting and marking shall be complied with in respect of every captive balloon or kite flown within the United Kingdom and in respect of every airship moored at any place within the United Kingdom:—

Captive Balloons and Kites

A. In the case of a captive balloon or kite:—

(i) By night, lights shall be displayed in accordance with the following provisions:—

(*a*) the balloon or kite, when flown at an altitude exceeding 200 feet above the ground, or at any altitude if it is less than 3 statute miles from an aerodrome, shall display a group of two lights consisting of a white light placed 12 feet vertically above a red light, both these lights being visible, so far as practicable, in all directions at a distance of at least 2 nautical miles, and the white light being placed not less than 15 feet or more than 30 feet below the basket, or, if there is no basket, below the lowest part of the balloon or kite;

(*b*) in addition, from the mooring cable of the balloon or kite there shall be displayed, at intervals of 1,000 feet measured from the said group of two lights, similar groups of two lights, white and red, and, if the lowest group of lights is obscured by clouds, an additional group shall be displayed below the cloud base;

(*c*) in addition, the position of the object to which the balloon or kite is moored on the ground shall be marked by a group of three flashing lights arranged in a horizontal plane at the apexes of a triangle approximately equilateral and each side of which measures at least 80 feet; one side of this triangle shall be perpendicular to the horizontal projection of the cable and shall be delimited by two red lights; the third light shall be a green light placed opposite the direction of the cable:

(ii) By day, the mooring cable of a captive balloon shall have attached to it at intervals of not more than 600 feet measured from the basket, or, if there is no basket, from the lowest part of the balloon, tubular streamers not less than 16 inches in diameter and 6 feet in length, and marked with alternate bands of white and red 20 inches in width:

(iii) By day, the mooring cable of a kite shall be marked, either—

(*a*) in the manner required by the last preceding sub-paragraph in the case of a captive balloon; or

(*b*) by streamers of stout paper attached to the cable at intervals of 300 feet measured from the lowest part of the kite, such streamers to be not less than 32 inches in length or 1 foot in width in their widest part and marked with alternate bands of white and red 4 inches wide:

(iv) By way of exception to the provisions of this sub-paragraph, captive balloons and kites used for meteorological observations which, owing to their insufficient static lift, cannot display the lights and markings required by this sub-paragraph to be displayed may be flown, subject to the permission in writing of the Minister, but only over areas which are notified as danger areas. In every such case the position of the object to which the captive balloon or kite is moored on the ground shall be marked as required by sub-paragraph (i) (*c*) of this sub-paragraph:

Moored Airships

B. In the case of a moored airship:—

(i) when moored to a mooring mast the airship shall display, by night, at or near the rear a white light visible, so far as practicable, in all directions at a distance of at least 2½ nautical miles:

(ii) when moored to the surface of the ground or water by a cable the airship shall display the following lights:—

(*a*) forward, a white light, fixed so as to show forward an unbroken light, visible at a distance of at least 4 nautical miles, throughout a dihedral angle of 220° formed by two vertical planes and bisected by the plane of symmetry of the aircraft;

(*b*) at the rear, a white light fixed so as to show astern an unbroken light, visible at a distance of at least 2½ nautical miles, throughout a dihedral angle of 140° formed by two vertical planes and bisected by the plane of symmetry of the aircraft;

(*c*) in addition, the airship and its mooring cable shall be lighted or marked in accordance with such of the provisions of sub-paragraph A as are applicable in the case of a captive balloon:

Provided that—

(i) in a case where, in order to comply with the requirements of sub-paragraph A or sub-paragraph B a single light has to be replaced by several lights, the field of visibility of each of those lights shall be so limited that only one can be seen at a time;

(ii) the requirements of sub-paragraph B shall not apply to an airship while picking up its moorings; and

(iii) an airship while picking up its moorings, although it shall be considered as being under way and not being under control, shall display only the lights required by the Rules of the Air and Air Traffic Control in Schedule II to the Order to be displayed until it is finally made fast.

(2) For the purposes of this Regulation the expressions "night", "under way", "under control", "visible" and "plane of symmetry", have the meanings respectively assigned to them in the said Rules of the Air and Air Traffic Control, and the angular limits for lights prescribed herein shall be determined when the aircraft is in its normal attitude for flying on a rectilinear horizontal course.

229. Regulations 227 and 228 have effect subject to the provisions of Article 35 of the Order as to the powers of the Minister.

SECTION XVII

NOISE AND VIBRATION CAUSED BY AIRCRAFT ON AERODROMES

230. With reference to Article 51 of the Order, the conditions under which noise and vibration may be caused by any aircraft (including military aircraft) on any licensed aerodrome or Government aerodrome shall, subject to any special conditions which may be prescribed with respect to a particular aerodrome, be as follows:—

(*a*) that the aircraft is taking-off or landing; or

(*b*) that the aircraft is moving on the ground or on water; or

(*c*) that the engines of the aircraft are being operated—

(i) for the purpose of ensuring their satisfactory performance; or

(ii) for the purpose of bringing them to a proper temperature in preparation for, or at the end of, a flight; or

(iii) for the purpose of ensuring that the instruments, accessories or other components of the aircraft are in a satisfactory condition.

SECTION XVIII

LICENSING OF AERODROMES

231. With reference to Article 47 of the Order, application for the grant or renewal of an aerodrome licence should be made to the Secretary, Ministry of Civil Aviation, London, W.C.2, on a form which will be supplied by him on request.

232. An aerodrome licence may be granted for any period up to a maximum of twelve months, and on each occasion of renewal may be renewed for a period not exceeding twelve months.

SECTION XIX

GLIDING POINTS

233. With reference to Article 58 of the Order, application for the issue of a certificate of approval in respect of a point in relation to gliders should be made to the Secretary, Ministry of Civil Aviation, London, W.C.2, on a form which will be supplied by him on request.

SECTION XX

RENEWAL OF CERTAIN LICENCES ISSUED UNDER THE AIR NAVIGATION (CONSOLIDATION) ORDER, 1923(a)

234. With reference to Article 73 (2) (*b*) of the Order, a pilot's licence to fly public transport or aerial work aircraft and the licence of an aircraft navigator, 1st class, or an aircraft navigator, 2nd class, issued or validated under the Air Navigation (Consolidation) Order, 1923, as amended by any of the other Orders specified in paragraph (1) of the said Article, and in force on the first day of April, 1949, may upon application being made and on the Minister being satisfied that the applicant is qualified in accordance with the requirements referred to in Regulation 235 to have the licence renewed, from time to time be renewed by the Minister so as to remain in force until a date not later than the thirtieth day of June, 1950.

235. The requirements referred to in Regulation 234 are the requirements relating to the renewal of the said licences specified in Section XII of the Air Navigation Directions, 1936 (A.N.D. 13), as amended by the Air Navigation Regulations, 1937, the Air Navigation Regulations, 1938, and the Air Navigation Regulations, 1946, which for the purposes of this Section shall continue in force until the thirtieth day of June, 1950.

SECTION XXI

CONCLUSION

236.—(1) These Regulations may be cited as the Air Navigation (General) Regulations, 1949.

(2) These Regulations shall come into operation on the first day of April, 1949.

Signed by order of the Minister of Civil Aviation this fifth day of March, 1949.

A. E. Overton,
Secretary of the Ministry of Civil Aviation.

(a) S.R. & O. 1923 (No. 1508) p. 13. Reprinted with all previous amendments under title "Air Navigation (Consolidation) Order, 1923, as amended to 19th February, 1946", and since amended by the Air Navigation (Amendment) (Lading of Stores) Order, 1947, S.R. & O. 1947 (No. 193) I, p. 68; the Air Navigation (Amendment) Order, 1948, S.I. 1948 (No. 1328) I, p. 119; and the Air Navigation (Amendment) (No. 2) Order, 1948, S.I. 1948 (No. 2074) I, p. 157.