1954 No. 925

The Air Navigation (General) Regulations, 1954

Made - - - - 8*th July*, 1954
Coming into Operation 1*st August*, 1954

ARRANGEMENT OF REGULATIONS

			Regulation
PART	I	General	1 to 4
PART	II	Registration and airworthiness of aircraft	5 to 18
PART	III	Instruments, equipment and safety devices in aircraft	19 to 29
PART	IV	Maintenance and safety precautions for public transport aircraft	30 to 43
PART	V	Training, etc., of personnel for public transport aircraft	44 to 46
PART	VI	Overhaul, etc., of aircraft and licensing of aircraft maintenance engineers	47 to 63
PART	VII	Carriage of operating crew	64 to 69
PART	VIII	Student pilot's licence	70 to 73
PART	IX	Practice flights	74 to 76
PART	X	Licensing of members of operating crew	77 to 213
PART	XI	Towing	214 to 217
PART	XII	Flying instruction	218 to 224
PART	XIII	Captive balloons, kites and moored airships ...	225 to 229
PART	XIV	Aerodromes	230 to 232

The Minister of Transport and Civil Aviation, in exercise of the powers conferred upon him by the Air Navigation Order, 1954(a), and of all other powers enabling him in that behalf, hereby makes the following Regulations:—

PART I

GENERAL

1. These Regulations may be cited as the Air Navigation (General) Regulations, 1954.

2. These Regulations shall come into operation on the first day of August, 1954.

(a) S.I. 1954/829, p. 259 above.

3.—(1) In these Regulations, unless the context otherwise requires—

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

" Alternate aerodrome " means an aerodrome selected prior to take-off to which a flight may proceed when a landing at the intended destination becomes inadvisable ;

" 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 ;

" 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 Parts X and XI, 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 ;

" 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 ;

" 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 ;

" 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 7 of the Civil Aviation Act, 1949(**a**) ;

" The Order " means the Air Navigation Order, 1954.

(2) The Interpretation Act, 1889(**b**), applies for the purposes of the interpretation of these Regulations as it applies for the purpose of the interpretation of an Act of Parliament.

4. Subject and without prejudice to the provisions of Regulation 3, expressions used in these Regulations shall, unless the contrary intention otherwise requires, have the same respective meanings as in the Order.

(**a**) 12, 13 & 14 Geo. 6. c. 67. (**b**) 52 & 53 Vict. c. 63.

PART II

REGISTRATION AND AIRWORTHINESS 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 Transport and Civil Aviation, London, 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.

7. With reference to Article 12 (8) of the Order, application for the issue of a certificate of airworthiness or for the validation of such a certificate shall be made to the Secretary, Ministry of Transport and Civil Aviation, London. Application for the renewal of a certificate of airworthiness or for the renewal of a validation of such a certificate shall be made to the Secretary, Air Registration Board, Brettenham House, Lancaster Place, London, W.C.2. Application shall be made on the appropriate form which will be supplied on request by the Secretary, Ministry of Transport and Civil Aviation, or the Secretary, Air Registration Board, as the case may be.

8. In the following provisions of this Part, 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 12 (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 11 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 48, 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:

Provided that when the flight is being made for the purpose of testing the radio apparatus installed in the aircraft the aircraft may be flown to and within the vicinity of the radio testing station suitable for the carrying out of the said tests which is nearest to the place of departure.

(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 48, 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 9 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.

13. With reference to Article 14 and Article 42 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.

PART III

Instruments, Equipment and Safety Devices in Aircraft

19. The requirements of this Part are prescribed for the purposes of paragraphs (2) and (3) of Article 33 of the Order.

20.—(1) The instruments and equipment specified in this Part 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 (9) (*b*) of Regulation 24.
The apparatus referred to in paragraph (4) (*b*) of Regulation 24.
Timepieces.
Chart tables.
First aid kits.
Sea anchors (drogues).
Torches.
Whistles.
Sound signals.
Equipment for mooring or for anchoring.
Mooring lights.

(2) 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, triangular bandages, absorbent gauze, adhesive plaster, white absorbent lint, cotton wool (or wound dressings in place of these two items) burn dressings, safety pins.

Instruments: Haemostatic bandage or tourniquet, scissors.

Drugs: Antiseptic, analgesic, stimulant.

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 and equipment specified in this Regulation and in Regulations 23 to 29 shall be carried in an aircraft and the measures so specified shall be taken in an aircraft in the cases 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*) 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;

(*c*) first aid kit, except in the case of private flying machines;

(*d*) spare electrical fuses for all electrical circuits the fuses of which can be replaced in flight, consisting of 10 per cent. of the number of each rating, or 3 of each rating, whichever is the greater;

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 the lights described in Section XII of Schedule II to the Order;

(*b*) in flying machines not equipped with radio communication apparatus, equipment for making the visual signal specified in Rule 46 (3) in Schedule II to the Order;

(*c*) adequate electrical illumination, supplied from the main source of supply in the flying machine, 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;

(*d*) turn-and-slip indicator, or a gyroscopic bank and pitch indicator and a gyroscopic direction indicator.

(2) *In flying machines for flights made under Instrument Flight Rules in Flight Information Regions above the height notified in accordance with Rule 32 in Schedule II to the Order.*

(*a*) Turn-and-slip indicator, or a gyroscopic bank and pitch indicator and a gyroscopic direction indicator;

(*b*) two sensitive altimeters adjustable for changes in barometric pressure, one of which may be the altimeter required for the issue of a certificate of airworthiness.

(3) *In flying machines for flights made under Instrument Flight Rules in Flight Information Regions below the height notified in accordance with Rule 32 in Schedule 11 to the Order or for flights made in accordance with a special Visual Flight Rule clearance.*

(*a*) Turn-and-slip indicator, or a gyroscopic bank and pitch indicator and a gyroscopic direction indicator ;

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

(4) *In flying machines for flights made under Instrument Flight Rules in Control Zones and Control Areas.*

(*a*) Turn-and-slip indicator ;

(*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 for the issue of a certificate of airworthiness ;

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

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

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

(*h*) in flying machines the maximum total weight authorised of which exceeds 12,500 lb., a means of indicating the outside air temperature ;

(*j*) in flying machines the maximum total weight authorised of which exceeds 12,500 lb., two air speed indicators ;

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

(5) *In flying machines for flights involving aerobatic manoeuvres.*

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

PUBLIC TRANSPORT FLYING MACHINES

24.—(1) *For all flights*

(*a*) (i) *Aeroplanes.*—Safety harness for every pilot's seat in use or, in the case of an aeroplane in respect of which an application for a certificate of airworthiness for the prototype thereof was made prior to 1st April, 1949, a safety belt or safety harness for every pilot's seat in use ;

(ii) *Helicopters.*—A safety belt or safety harness for every pilot's seat in use ;

(*b*) safety belt or safety harness for every passenger's seat and means of indicating to the passengers when they should be fastened ;

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

(*d*) timepiece with a centre second's hand ;

(*e*) turn-and-slip indicator, or a gyroscopic bank and pitch indicator and a gyroscopic direction indicator ;

(*f*) such other instruments, equipment and supplies as the Minister may, at his discretion, require to be carried on flights across notified areas where search and rescue would be especially difficult, or in the particular circumstances of the case.

(2) *For flights by night or under Instrument Flight Rules by public transport flying machines the maximum total weight authorised of which exceeds* 2,500 *lb.*

(*a*) The equipment specified in paragraph (4) of Regulation 23.

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

(*a*) Lifejacket, or equivalent, equipped with a waterproof torch 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 lifejackets 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, provided in a stowage accessible from outside the flying machine;

(*d*) equipment of marine type for making, from the surface of the water, the pyrotechnical signal of distress specified in Rule 67 in Schedule II to the Order;

(*e*) equipment for mooring or for anchoring appropriate to the maximum total weight authorised for the flying machine.

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

(*a*) Sea anchor (drogue);

(*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.

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

The equipment and notices specified at (*a*) and (*b*) respectively in paragraph (3) of this Regulation;

(6) *For flights by public transport aeroplanes over water during which at any time they may be at such a distance from the nearest shore that, while flying in still air at the speed specified in the certificate of airworthiness, performance schedule or flight manual relating to each such aeroplane issued or rendered valid by the Minister as the speed for compliance with regulations governing flights over water, they would be unable to reach the nearest shore in the following times:—*

(A) *In the case of aeroplanes classified in such certificates of airworthiness as aeroplanes of performance group A or C,* 90 *minutes;*

(B) *In the case of aeroplanes having no performance group classification in such certificates of airworthiness and satisfying condition* (1) (*c*) *of Regulation* 33, 90 *minutes; and*

(C) *In the case of all other aeroplanes,* 30 *minutes.*

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

(i) means for maintaining buoyancy;

(ii) a drogue to reduce drift;

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

(iv) paddles or other means of propulsion ;
(v) equipment to protect the occupants from the elements ;
(vi) a waterproof torch ;
(vii) marine type pyrotechnical distress signals ;
(viii) means of making sea water drinkable ;
(ix) sufficient food and water to sustain the occupants of the dinghy for a period as notified ;
(x) first aid equipment.

(*b*) The items (i), (ii), (iii), (iv), (v) and (vii) 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.

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

(*d*) The method of stowage of dinghies required by sub-paragraph (*a*) 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.

(*e*) The equipment specified in (vi) to (x) of sub-paragraph (*a*) 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.

(*f*) 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 be approved.

(*g*) 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 Transport and Civil Aviation, London.)

(7) *For flights by night*

(*a*) The flying machine shall be equipped with landing lights consisting of two single-filament or one dual-filament lamp with separately energised filaments ;

(*b*) every passenger compartment in the flying machine shall be illuminated and the lighting system providing that illumination shall be of approved type, design and construction ;

(*c*) (i) if the flying machine is authorised by the certificate of airworthiness relating thereto issued or rendered valid by the Minister to carry more than nineteen persons over three years of age and the flight is undertaken after the 1st January, 1955, the flying machine shall be equipped with two electric torches, and with an emergency lighting system of approved type, design and construction providing illumination in the passenger compartments which will facilitate the evacuation of the flying machine in the event of the failure of the lighting system specified in sub-paragraph (*b*) of this paragraph ; and (ii) in every other case the flying machine shall be equipped with one electric torch for each member of the personnel of the flying machine ;

(*d*) a public transport flying machine the maximum total weight authorised of which exceeds 12,500 lb. shall after the 1st January, 1955, be equipped with means of observing the existence and build-up of ice on the aircraft.

(8) *For a flight in the course of which a height of* 10,000 *feet or more above mean sea level is reached.*

(*a*) Bv a flying machine in which a pressure greater than 700 millibars is maintained throughout the flight in the control compartment and in every compartment in which passengers are carried—

A supply of oxygen sufficient, in the event of failure to maintain such pressure, for continuous use by all the personnel of the flying machine during the whole time in which after such failure the flying machine flies at a height exceeding 10,000 feet above mean sea level, together with suitable and sufficient apparatus for the use of the oxygen by the personnel of the flying machine;

(*b*) by any other flying machine—

(i) A supply of oxygen sufficient for continuous use by all the personnel of the flying machine and, if passengers are carried, by 30 per cent. of the passengers during any time exceeding 20 minutes in which the flying machine flies at a height exceeding 10,000 feet and not exceeding 13,000 feet above mean sea level, together with suitable and sufficient apparatus for the use of the oxygen by the personnel of the flying machine and, if passengers are carried, by 30 per cent. of the passengers;

(ii) a supply of oxygen sufficient for continuous use by all the personnel of the flying machine and, if passengers are carried, by all the passengers, during the whole time in which the flying machine flies at a height exceeding 13,000 feet above mean sea level, together with suitable and sufficient apparatus for the use of the oxygen by the personnel of the flying machine and, if passengers are carried, by the passengers;

(iii) for flights on which passengers are carried and in the course of which the flying machine flies at a height exceeding 13,000 feet above mean sea level, means of indicating to every passenger when the use of oxygen is recommended;

(iv) before the flying machine reaches a height of 13,000 feet above mean sea level the method of use of oxygen shall be demonstrated to every passenger;

(v) as soon as the flying machine reaches a height of 13,000 feet above mean sea level every passenger shall be notified that the use of oxygen is recommended;

(vi) during the whole time in which the flying machine is flying at a height exceeding 13,000 feet above mean sea level oxygen shall be used by each member of the personnel of the flying machine.

(9) *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.

(10) *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 aero-dynamic 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 aero-dynamic 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.

(11) *For flights on which passengers are carried.*

The pilot in charge of the flying machine, or other member of the personnel 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 ;

(*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 ;

(*d*) in the case of flights by land planes over water beyond 30 minutes flying distance from the nearest shore, show the passengers by practical demonstration before the take-off or before reaching 30 minutes flying distance from the nearest shore, the position of the lifejackets, or equivalents, and the method of their operation ;

(*e*) in the case of flights by flying boats over water, show the passengers by practical demonstration before the take-off the position of the lifejackets, or equivalents, and the method of their operation ;

(*f*) take reasonable steps to ensure that one pilot at the controls is properly secured in his seat at all times during the flight.

GLIDERS

25. ***In public transport and aerial work gliders.***

The instruments, equipment and devices required for the issue of a certificate of airworthiness in respect of the particular glider. Such additional instruments and equipment as the Minister may, at his discretion, require to be carried in the particular case.

26. The items specified in this Regulation 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 all gliders for flights by night.*

(*a*) Equipment for displaying the lights described in Rule 73 in Schedule II to the Order ;

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

(2) *In all gliders for flights involving aerobatic manoeuvres.*

Safety harness for every seat in use.

Free Balloons

27.—(1) *For all flights*

(*a*) Equipment necessary for making the pyrotechnical signal of distress specified in Rule 67 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 the lights described in Rule 74 in Schedule II to the Order.

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 Part XIII of these Regulations.

Duplication of Certain Instruments

29. If any instrument, indicator or gauge required under this Part 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.

PART IV

Maintenance and Safety Precautions for Public Transport Aircraft

Certificates of maintenance

30.—(1) With reference to Article 16 of the Order the operator of an aircraft registered in the United Kingdom which carries or is intended by the operator for carrying passengers or goods for hire or reward 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 maintenance:—

(*a*) Prior to the issue of a certificate of maintenance 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 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 maintenance issued may be altered by inserting after the word "equipment" the words "other than compasses". Such alteration to a certificate of maintenance shall be initialled by the aircraft maintenance engineer who issues the certificate.

31. The certificate of maintenance issued in accordance with the provisions of Article 16 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 for the purpose:—

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

CERTIFICATION OF MAINTENANCE*

Flying Machine Type or Airship Type.....

Nationality and Registration Marks.....

I HEREBY certify that the above aircraft (including its prescribed instruments and equipment, but excluding the engines and engine installations and all instruments relating thereto) has been maintained and inspected in accordance with the approved maintenance schedules 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 .

Period of validity.....days from the time of issue or upon completion by the aircraft of.....flying hours whichever is the shorter period.

I HEREBY certify that the engines and engine installations (including the prescribed instruments relating thereto) of the above aircraft have been maintained and inspected in accordance with the approved maintenance schedules 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

Period of validity ..... days from the time of issue or upon completion by the aircraft of ..... flying hours whichever is the shorter period.

---

* 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 MAINTENANCE*

Free Balloon Type .....

Nationality and Registration Marks .....

I HEREBY certify that the above aircraft (including its prescribed instruments and equipment) has been maintained and inspected in accordance with the approved maintenance schedules 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

Period of validity ..... days from the time of issue or upon completion by the aircraft of ..... flying hours whichever is the shorter period.

---

* 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 MAINTENANCE*

Captive Balloon Type .....

Nationality and Registration Marks .....

I HEREBY certify that the above aircraft (including its prescribed instruments and equipment and also the winch and cable by which it is operated) has been maintained and inspected in accordance with the approved maintenance schedules 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

Period of validity ..... days from the time of issue or upon completion by the aircraft of ..... flying hours whichever is the shorter period.

* 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 MAINTENANCE*

Glider Type .....

Nationality and Registration Marks .....

I HEREBY certify that the above aircraft (including its prescribed instruments and equipment and also its towing gear) has been maintained and inspected in accordance with the approved maintenance schedules 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

Period of validity ..... days from the time of issue or upon completion by the aircraft of ..... flying hours whichever is the shorter period.

* 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 maintenance required by Article 16 of the Order shall be prepared in ink or indelible pencil.

Requirements as to the Weight and Performance of Public Transport Aeroplanes having no Performance Group Classification in their Certificates of Airworthiness.

33. With reference to Article 17 of the Order a public transport aeroplane having no performance group classification in the certificate of airworthiness relating to the aeroplane issued or rendered valid by the Minister shall not fly or attempt to fly unless the following conditions are satisfied:—

(1) The weight and performance of the aeroplane at the commencement of the take-off run are such that either—

(*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 engine or engines operating within the maximum continuous power conditions specified in the certificate of airworthiness, performance schedule or flight manual relating to the aeroplane issued or rendered valid by the Minister, shall be capable of a gradient of climb of at least 1 in 200, at an altitude of 5,000 feet above mean sea level in air having a temperature of 5·1° centigrade and a pressure of 843 millibars.

(2) The weight of the aeroplane at the commencement of the take-off run does not exceed any of the following weights:—

(*a*) The weight, if any, specified in the performance schedule or flight manual relating to the aeroplane issued or rendered valid by the Minister as being the maximum take-off weight appropriate either to the height above mean sea level of and the air temperature at the aerodrome at which the take-off is to be made, or to the height above mean sea level of such aerodrome;

(*b*) The weight at which the aeroplane, with all engines operating within the maximum take-off power conditions specified in the certificate of airworthiness, performance schedule or flight manual relating to the aeroplane issued or rendered valid by the Minister, is capable of attaining a height of 50 feet within the following distance—

(i) if the aeroplane has one or two engines—the take-off run available or 75 per cent. of the emergency distance available, whichever is the less, at the aerodrome at which the take-off is to be made;

(ii) if the aeroplane has more than two engines—the take-off run available or 85 per cent. of the emergency distance available, whichever is the less, at the aerodrome at which the take-off is to be made;

(*c*) The weight at which the aeroplane, with all engines operating within the maximum take-off power conditions specified in the certificate of airworthiness, performance schedule or flight manual relating to the aeroplane issued or rendered valid by the Minister, is, after passing the end of the emergency distance available, capable of clearing by a safe margin any obstacle, the distance from which to the nearest point on the ground below the intended line of flight of the aeroplane does not exceed 200 feet plus half the wing span of the aeroplane.

(3) The aeroplane will, in the meteorological conditions expected for the flight in the event of one engine becoming inoperative at any point on its route or on any planned diversion therefrom and with the other engine or engines, if any, operating within the maximum continuous power conditions specified in the certificate of airworthiness, performance schedule or flight manual relating to the aeroplane issued or rendered valid by the Minister, be capable of continuing the flight so as to reach a point above—

(*a*) an aerodrome at which a safe landing can be made at a suitable height for such landing ; or

(*b*) if the aeroplane has a maximum total weight authorised in its certificate of airworthiness not exceeding 12,500 lb. and complies with either condition (1) (*a*) or condition (1) (*b*) hereof, a place at which a safe landing can be made at a suitable height for such landing.

(4) The aeroplane will, in the meteorological conditions expected for the flight, at any point on its route or on any planned diversion therefrom, be capable of climbing at a gradient of at least 1 in 50, with all engines operating within the maximum continuous power conditions specified in the certificate of airworthiness, performance schedule or flight manual relating to the aeroplane issued or rendered valid by the Minister, at the following altitudes:—

(*a*) The minimum altitudes for safe flight on each stage of the route to be flown or of any planned diversion therefrom stated in, or calculated from the information contained in, the operations manual ;

(*b*) the minimum altitudes on each stage of the route to be flown or of any planned diversion therefrom at which it is necessary to fly to ensure that, in the event of one engine becoming inoperative and with the other engine or engines, if any, operating within the maximum continuous power conditions specified in the certificate of airworthiness, performance schedule or flight manual relating to the aeroplane issued or rendered valid by the Minister, the aeroplane is capable of continuing the flight so as to reach a point above—

(i) an aerodrome at which a safe landing can be made at a height suitable for such landing ; or

(ii) if the aeroplane has a maximum total weight authorised in its certificate of airworthiness not exceeding 12,500 lb., and complies with either condition (1) (*a*) or condition (1) (*b*) hereof, a place at which a safe landing can be made at a height suitable for such landing.

(5) If on the route to be flown the aeroplane will be engaged in a flight over water during which at any time it may be more than 90 minutes flying time in still air from the nearest shore, it will, in the event of one engine becoming inoperative during such time and with the other engine or engines, if any, operating within the maximum continuous power conditions specified in the certificate of airworthiness, performance schedule or flight manual relating to the aeroplane, issued or rendered valid by the Minister, be capable of climbing at a gradient of at least 1 in 200, at an altitude of 5,000 feet above mean sea level in air having a temperature of 5·1° centigrade and a pressure of 843 millibars.

(6) The weight of the aeroplane at the intended time of landing calculated by deducting the estimated weight of the fuel expected to be used on the flight from its weight at the commencement of the take-off run will not exceed any of the following weights:—

(*a*) the weights if any specified in the performance schedule or flight manual relating to the aeroplane issued or rendered valid by the Minister, as the maximum landing weights appropriate either to the heights above mean sea level of, and the air temperatures forecast for the estimated times of landing at, the aerodrome at which it is intended to land and any alternate aerodrome, or to the heights above mean sea level of such aerodromes;

(*b*) the weight at which the aeroplane is capable of landing safely in still air conditions in not more than 70 per cent., or, if a visual approach and landing will be possible in the meteorological conditions forecast for the estimated time of landing, in not more than 80 per cent. of the landing distance available at the aerodrome at which it is intended to land or at any alternate aerodrome;

(*c*) the weight at which the aeroplane is capable of landing safely in the wind conditions forecast for the estimated time of landing, regard being had to not more than 50 per cent. of the forecast wind component opposite to the direction of landing, or to not less than 150 per cent. of the forecast wind component in the direction of landing, in not more than 70 per cent., or if a visual approach and landing will be possible in the meteorological conditions forecast for the estimated time of landing is not more than 80 per cent., of the landing distance available at the aerodrome at which it is intended to land or at any alternate aerodrome.

34.—(1) In assessing the ability of the aeroplane to satisfy conditions (2) (*b*) and (2) (*c*) of Regulation 33 regard shall be had to the effect on its performance of the following factors:—

(*a*) The height above mean sea level of the aerodrome;

(*b*) the amount by which either the air temperature at the time of take-off or a temperature approved in respect of the aerodrome by the Minister exceeds by more than 15° centigrade the temperature of the international standard atmosphere, appropriate to the height above mean sea level of the aerodrome, from time to time specified in a publication issued by the Minister;

(*c*) the average slope of the surface of the aerodrome in the direction of take-off over the emergency distance available;

(*d*) not more than 50 per cent. of the reported wind component opposite to the direction of take-off or not less than 150 per cent. of the reported wind component in the direction of take-off.

(2) In assessing the ability of the aeroplane to satisfy conditions (6) (*b*) and (6) (*c*) of Regulation 33 regard shall be had to the effect on performance of the following factors:—

(*a*) the height above mean sea level of the aerodrome;

(*b*) the average slope of the surface of the aerodrome in the direction of landing over the landing distance available.

35. The assessment of the ability of an aeroplane to comply with Regulation 33 shall be based on the information as to its weight and performance contained in the performance schedule or flight manual relating to the

aeroplane issued or rendered valid by the Minister; provided that if no performance schedule and no flight manual relating to the aeroplane has been issued or rendered valid by the Minister, or if the performance schedule or flight manual issued or rendered valid by the Minister does not contain the relevant information, the assessment shall be based on the best information available to the person in command of the aeroplane.

Requirements as to the Weight and Performance of Public Transport Aeroplanes classified as Aeroplanes of Performance Group A in their Certificates of Airworthiness

36. With reference to Article 17 of the Order a public transport aeroplane classified in the certificate of airworthiness relating to the aeroplane issued or rendered valid by the Minister as an aeroplane of performance group A shall not fly or attempt to fly unless the weight of the aeroplane at the commencement of the take-off run is such that the following conditions are satisfied:—

(1) Such weight does not exceed the maximum take-off weight ascertained by reference to the flight manual relating to the aeroplane issued or rendered valid by the Minister as being appropriate to the height above mean sea level and the air temperature at the aerodrome at which the take-off is to be made.

(2) The take-off run required, the take-off distance required and the take-off emergency distance required ascertained by reference to the said flight manual as being appropriate to—

(*a*) the weight of the aeroplane at the commencement of the take-off run;

(*b*) the height above mean sea level of the aerodrome;

(*c*) either the air temperature at the time of take-off or a temperature approved in respect of the aerodrome by the Minister;

(*d*) the surface gradient of the surface of the aerodrome in the direction of take-off over the take-off run available, the take-off distance available and the emergency distance available, respectively;

(*e*) not more than 50 per cent. of the reported wind component opposite to the direction of take-off or not less than 150 per cent. of the reported wind component in the direction of take-off;

do not exceed the take-off run available, the take-off distance available and the emergency distance available, respectively, at the aerodrome at which the take-off is to be made; the ratio of power failure speed of the aeroplane, ascertained by reference to the said flight manual, to take-off safety speed of the aeroplane similarly ascertained, used in ascertaining the take-off emergency distance required being not less than that used in ascertaining the take-off distance required.

(3) (*a*) The net take-off flight path with one power unit inoperative, ascertained by reference to the said flight manual as being appropriate to—

(i) the weight of the aeroplane at the commencement of the take-off run;

(ii) the height above mean sea level of the aerodrome;

(iii) either the air temperature at which the take-off is to be made or a temperature approved in respect of the aerodrome by the Minister;

(iv) not more than 50 per cent. of the reported wind component opposite to the direction of take-off or not less than 150 per cent. of the reported wind component in the direction of take-off ;

and plotted from a point 50 feet above the end of the take-off distance required at the aerodrome at which the take-off is to be made to the point at which the aeroplane reaches the minimum altitude for safe flight on the first stage of the route to be flown stated in or calculated from the information contained in the operations manual, shows that the aeroplane will clear any obstacle in its path by a vertical interval of at least 35 feet plus $\frac{1}{200}$ of the distance from the point on the ground below the intended line of flight of the aeroplane nearest to the obstacle to the end of the take-off distance available, measured along the intended line of flight of the aeroplane, and if it is intended that the aeroplane shall change its direction of flight by more than 15° before reaching such minimum altitude for safe flight, also shows that the aeroplane while changing its direction will clear any obstacle in its path by a vertical interval of at least 100 feet, after allowing for the reduction in the gradient of climb applicable to such change in direction specified in the said flight manual.

(*b*) For the purpose of sub-paragraph (*a*) hereof an obstacle shall be deemed to be in the path of the aeroplane if the distance from the obstacle to the nearest point on the ground below the intended line of flight of the aeroplane does not exceed:—

(i) a distance of 200 feet plus half the wing span of the aeroplane plus $\frac{1}{8}$th of the distance from such point to the end of the take-off distance available measured along the intended line of flight of the aeroplane ; or

(ii) 5,000 feet whichever is the less.

(*c*) In assessing the ability of the aeroplane to satisfy this condition it shall not be assumed to make a change of direction of a radius less than the radius of steady turn specified in the said flight manual.

(4) The aeroplane will in the meteorological conditions expected for the flight, in the event of any one power unit becoming inoperative at any point on its route or on any planned diversion therefrom, be capable of continuing the flight, with the other power units operating within the maximum continuous power conditions specified in the said flight manual, at altitudes not less than the relevant minimum altitudes for safe flight stated in, or calculated from, the information contained in the operations manual, to a point 1,500 feet above an aerodrome at which a safe landing can be made and after arrival at that point it will be capable of maintaining that height:

Provided that in assessing the ability of the aeroplane to satisfy this condition it shall not be assumed to be capable of flying at any point on its route at an altitude exceeding the performance ceiling with all power units operating ascertained by reference to the said flight manual as being appropriate to its estimated weight at that point.

(5) The aeroplane will, if it has four or more power units, in the event of any two power units becoming inoperative at any point along the route or on any planned diversion therefrom more than 90 minutes flying time with all power units operating from the nearest aerodrome at which a safe landing can be made, be capable of continuing the flight with all other power units operating within the maximum continuous power conditions specified in the said flight manual at a height of not less than 1,000 feet above ground level to a point above such an aerodrome.

(6) The weight of the aeroplane at the intended time of landing (hereinafter in this Regulation called "the landing weight"), calculated by deducting the estimated weight of the fuel expected to be used on the flight from its weight at the commencement of the take-off run, will not exceed any of the maximum landing weights ascertained by reference to the said flight manual as being appropriate to the heights above mean sea level of and the air temperatures forecast for the estimated times of landing at the aerodrome at which it is intended to land and at any alternate aerodrome.

(7) The landing distance ascertained by reference to the said flight manual as being appropriate to—

(*a*) the landing weight;

(*b*) the height above mean sea level of the aerodrome;

(*c*) either the air temperature at the aerodrome forecast for the estimated time of landing or a temperature approved in respect of the aerodrome by the Minister;

(*d*) still air conditions;

(*e*) the average slope of the surface of the aerodrome in the direction of landing over the landing distance available;

does not exceed 70 per cent. of the landing distance available at the aerodrome at which it is intended to land or at any alternate aerodrome.

(8) The landing distance ascertained by reference to the said flight manual as being appropriate to:—

(*a*) the landing weight;

(*b*) the height above mean sea level of the aerodrome;

(*c*) either the air temperature at the aerodrome forecast for the estimated time of landing or a temperature approved in respect of the aerodrome by the Minister;

(*d*) not more than 50 per cent. of the forecast wind component opposite to the direction of landing or not more than 150 per cent. of the forecast wind component in the direction of landing;

(*e*) the average slope of the surface of the aerodrome in the direction of landing over the landing distance available;

does not exceed 70 per cent. of the landing distance available at the aerodrome at which it is intended to land or at any alternate aerodrome.

Requirements as to the Weight and Performance of Public Transport Aeroplanes classified as Aeroplanes of Performance Group C or of Performance Group D in their Certificates of Airworthiness

37. With reference to Article 17 of the Order a public transport aeroplane classified in the certificate of airworthiness relating to the aeroplane issued or rendered valid by the Minister as an aeroplane of performance group C or of performance group D shall not fly or attempt to fly unless the weight of the aeroplane at the commencement of the take-off run is such that the following conditions are satisfied:—

(1) Such weight does not exceed the maximum take-off weight ascertained by reference to the flight manual relating to the aeroplane issued or rendered valid by the Minister as being appropriate to the height above mean sea level of and the air temperature at the aerodrome at which the take-off is to be made.

(2) The take-off run required and the take-off distance required ascertained by reference to the said flight manual as being appropriate to—

(*a*) the weight of the aeroplane at the commencement of the take-off run ;

(*b*) the height above mean sea level of the aerodrome ;

(*c*) either the air temperature at the time of take-off or a temperature approved in respect of the aerodrome by the Minister ;

(*d*) the average slope of the surface of the aerodrome in the direction of take-off over the emergency distance available ;

(*e*) not more than 50 per cent. of the reported wind component opposite to the direction of take-off or not less than 150 per cent. of the reported wind component in the direction of take-off ;

do not exceed the take-off run available and the emergency distance available, respectively, at the aerodrome at which the take-off is to be made.

(3) (*a*) The net take-off flight path with all power units operating, ascertained by reference to the said flight manual as being appropriate to—

(i) the weight of the aeroplane at the commencement of the take-off run ;

(ii) the height above mean sea level of the aerodrome ;

(iii) either the air temperature at which the take-off is to be made or a temperature approved in respect of the aerodrome by the Minister ;

(iv) not more than 50 per cent. of the reported wind component opposite to the direction of take-off or not less than 150 per cent. of the reported wind component in the direction of take-off ;

and plotted from a point 50 feet above the end of the take-off distance required at the aerodrome at which the take-off is to be made to the point at which the aeroplane reaches the minimum altitude for safe flight on the first stage of the route to be flown stated in or calculated from the information contained in the operations manual, shows that the aeroplane will clear by a safe margin any obstacle the distance from which to the nearest point on the ground below the intended line of flight of the aeroplane does not exceed 200 feet plus half the wing span of the aeroplane.

(*b*) In assessing the ability of the aeroplane to satisfy this condition it shall not be assumed to make a change of direction of a radius less than the radius of steady turn specified in the said flight manual.

(4) The aeroplane will, if it is classified in its certificate of airworthiness as an aeroplane of performance group C and if it is necessary for it to be flown solely by reference to instruments for any period before reaching the minimum altitude for safe flight on the first stage of the route to be flown, stated in, or calculated from the information contained in, the operations manual, during such period also satisfy condition (3) of Regulation 36.

(5) The aeroplane will, in the meteorological conditions expected for the flight, in the event of any one power unit becoming inoperative at any point on its route or on any planned diversion therefrom, and with the other power units or power unit, if any, operating within the maximum continuous power conditions specified in the said flight manual:—

(*a*) in the case of an aeroplane classified as an aeroplane of performance group C, be capable of continuing the flight at altitudes not

less than the relevant minimum altitudes for safe flight stated in, or calculated from the information contained in, the operations manual to a point 1500 feet above an aerodrome at which a safe landing can be made and after arrival at that point be capable of maintaining that height ;

(*b*) in the case of an aeroplane classified as an aeroplane of performance group D, be capable of continuing the flight to a point 1,000 feet above a place at which a safe landing can be made:

Provided that in assessing the ability of the aeroplane to satisfy this condition it shall not be assumed to be capable of flying at any point on its route at an altitude exceeding the performance ceiling with all power units operating ascertained by reference to the said flight manual as being appropriate to its estimated weight at that point.

(6) The weight of the aeroplane at the intended time of landing, (hereinafter in this Regulation called " the landing weight ") calculated by deducting the estimated weight of the fuel expected to be used on the flight from its weight at the commencement of the take-off run, will not exceed any of the maximum landing weights ascertained by reference to the said flight manual as being appropriate to the heights above mean sea level and the air temperatures forecast for the estimated time of landing at the aerodrome at which it is intended to land and at any alternate aerodrome.

(7) The landing distance, ascertained by reference to the said flight manual as being appropriate to—

(*a*) the landing weight ;

(*b*) the height above mean sea level of the aerodrome ;

(*c*) either the air temperature at the aerodrome forecast for the estimated time of landing or a temperature approved in respect of the aerodrome by the Minister ;

(*d*) still air conditions ;

(*e*) the average slope of the surface of the aerodrome in the direction of landing over the landing distance available ;

does not exceed 70 per cent. of the landing distance available at the aerodrome at which it is intended to land or at any alternate aerodrome.

(8) The landing distance, ascertained by reference to the said flight manual as being appropriate to—

(*a*) the landing weight ;

(*b*) the height above mean sea level of the aerodrome ;

(*c*) either the air temperature at the aerodrome forecast for the estimated time of landing or a temperature approved in respect of the aerodrome by the Minister ;

(*d*) not more than 50 per cent. of the forecast wind component opposite to the direction of landing or not more than 150 per cent. of the forecast wind component in the direction of landing ;

(*e*) the average slope of the surface of the aerodrome in the direction of landing over the landing distance available ;

does not exceed 70 per cent. of the landing distance available at the aerodrome at which it is intended to land or at any alternate aerodrome.

38. The assessment of the ability of an aeroplane, having a performance group classification in its certificate of airworthiness, to comply with Regulation 36 or 37, shall be based on the information as to its performance contained in the flight manual relating to the aeroplane issued or rendered valid by the Minister.

39. For the purposes of Regulations 33, 34, 36 and 37—

(*a*) The take-off run available means the distance from the point on the surface of the aerodrome at which the aeroplane can commence its take-off run to the nearest point in the direction of take-off at which the surface of the aerodrome is incapable of bearing the weight of the aeroplane under normal operating conditions ;

(*b*) the take-off distance available means either the distance from the point on the surface of the aerodrome at which the aeroplane can commence its take-off run to the nearest obstacle in the direction of take-off projecting above the surface of the aerodrome and capable of affecting the safety of the aeroplane or twice the take-off run available, whichever is the less ;

(*c*) the emergency distance available means the distance from the point on the surface of the aerodrome at which the aeroplane can commence its take-off run to the nearest point in the direction of take-off at which the aeroplane cannot roll over the surface of the aerodrome and be brought to rest in an emergency without risk of accident ;

(*d*) the landing distance available means the distance from the line of intersection with the surface of the aerodrome of a plane having the following characteristics—

(i) it is inclined at a gradient of 1 in 20,

(ii) it clears all obstacles,

(iii) it is symmetrical about a vertical plane containing the centre line of the runway or strip intended to be used for landing,

(iv) it extends for 1500 feet from its intersection with the surface of the aerodrome in the direction opposite to the direction of landing of the aeroplane,

(v) its width is 400 feet at its intersection with the surface of the aerodrome and increases uniformly to a width of 1,000 feet at its other end,

to the nearest point in the direction of landing at which the surface of the aerodrome is incapable of bearing the weight of the aeroplane under normal operating conditions or at which there is an obstacle capable of affecting the safety of the aeroplane.

40. For the purposes of Regulations 33 to 39—

(1) the weight of the aeroplane at the commencement of the take-off run shall be its gross weight including everything and everyone carried in or on it at the commencement of the take-off run ;

(2) the direction of take-off and the direction of landing shall be the directions respectively most suitable for take-off and landing at the aerodrome in the wind conditions specified in such Regulations.

(3) Where any distance mentioned in Regulation 39 has been declared in respect of any aerodrome by the authority responsible for regulating air navigation over the territory of the Contracting State in which the aerodrome is situate, and in the case of an aerodrome in the United Kingdom, declared by the Minister, such declared distance shall be deemed to be the relevant distance.

41. There shall be excepted from the provisions of Regulations 33 to 40 public transport aeroplanes used solely for the purpose of training any person carried therein to perform duties in an aeroplane.

Load sheets

42. With reference to paragraph (5) of Article 17 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 aircraft, except a public transport aircraft 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 aircraft:—

(*a*) solely for the purpose of training any persons carried therein, in addition to the personnel thereof, to perform duties in an aircraft; or

(*b*) as a local pleasure flight of short duration commencing from and finishing at one and the same aerodrome with no intermediate landing.

43.—(1) Every load sheet required in accordance with the provisions of Regulation 42 shall contain:—

(*a*) particulars of the nationality and registration marks of the aircraft;

(*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 aircraft as loaded has been computed; and

(*d*) a certificate by the person superintending the loading of the aircraft that the aircraft has been loaded in accordance with the written loading instructions furnished to him by the operator of the aircraft.

(2) Except as provided in paragraph (3) of this Regulation, the weight of the crew and passengers of an aircraft 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 aircraft having a total seating capacity of twelve persons or more, the person superintending the loading of the aircraft may, if so instructed by the person in command of the aircraft, 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 aircraft 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.

PART V

TRAINING ETC. OF PERSONNEL FOR PUBLIC TRANSPORT AIRCRAFT

44. With reference to Article 18 (4) of the Order:—

(1) The operator of a public transport aircraft registered in the United Kingdom shall not permit any person to fly as a pilot or flight engineer of the aircraft unless his competence to act as such and to use the equipment provided in the aircraft to enable him to act in that capacity has been established either

(*a*) by a test administered by the operator within a period of six months immediately preceding the flight, or

(*b*) by two tests administered by the operator within a period of twelve months immediately preceding the flight, the period between the two tests being not less than four calendar months.

(2) The operator of a public transport aircraft registered in the United Kingdom shall not permit any person to fly as a flight navigator or flight radio operator of the aircraft unless his competence to act as such and to use the equipment provided in the aircraft to enable him to act in that capacity has been established by a test administered by the operator within a period of twelve months immediately preceding the flight.

(3) The operator of a public transport aircraft registered in the United Kingdom shall not permit any person to fly as a member of the personnel of the aircraft unless his knowledge of the use of the life-saving equipment required to be carried in the aircraft and of the measures to be taken for the evacuation of the aircraft in an emergency has been established by a test administered by the operator within a period of twelve months immediately preceding the flight.

(4) (*a*) The operator of a public transport aircraft registered in the United Kingdom shall keep a record of every test carried out under this Regulation and shall cause to be entered in every such record the date on which the test takes place, the subject-matter of the test and a statement, signed by the person or persons carrying out the test, whether the person tested is competent in the matters in respect of which he is tested:

(*b*) Such record shall be preserved by the operator for a period of not less than two years after the date on which the test takes place.

45. With reference to Article 18 (4) of the Order:—

(1) The operator of a public transport aircraft registered in the United Kingdom shall not permit any person to act as pilot in charge of the aircraft on a scheduled journey undertaken between two specific places unless that person is qualified in accordance with the provisions of this Regulation so to act.

(2) A person who has not previously been so qualified to act as pilot in charge of a public transport aircraft on a scheduled journey between those places shall for the purposes of this Regulation be qualified so to act on the scheduled journey referred to in paragraph (1) of this Regulation if

(i) he has during the immediately preceding twelve months acted as pilot of any aircraft on two flights between those places, one of which flights took place within the immediately preceding two months,

(ii) he has during the immediately preceding twelve months carried out the instrument approach procedures established at the aerodromes on the journey referred to in paragraph (1) of this Regulation in accordance with paragraph (4) of this Regulation, and

(iii) after complying with conditions (i) and (ii) of this paragraph, he has been certified as competent to act as pilot in charge of an aircraft on a scheduled journey between those places by a person who is himself qualified under the provisions of this Regulation so to act and who has been authorised by the employer for the time being of the unqualified person to examine his competence so to act.

(3) A person who has previously been so qualified to act as pilot in charge of a public transport aircraft on a scheduled journey between those places shall for the purposes of this Regulation be qualified so to act on the scheduled journey in question if

(i) he has during the immediately preceding twelve months acted as pilot of any aircraft on two flights between those places, or

(ii) he has during the immediately preceding twelve months carried out the instrument approach procedures established at the aerodromes on that journey as provided by paragraph (4) of this Regulation.

(4) For the purposes of this Regulation a person shall be deemed to have carried out the instrument approach procedures established at the aerodromes on a scheduled journey between two specific places if

(i) he has carried out in making a landing at each aerodrome at which it is intended to land during the course of that journey one of the instrument approach procedures established at that aerodrome at the time of the scheduled journey, and

(ii) he has carried out in making a landing at each alternate aerodrome selected prior to take off on the scheduled journey or by simulated means one of the instrument approach procedures established at that alternate aerodrome at the time of the scheduled journey:

Provided that the Minister may by written authority exempt a person from satisfying any of conditions (i) and (ii) of this paragraph in respect of an aerodrome if the Minister is satisfied that the aerodrome is equipped with a precision or a runway approach system which that person is competent to use.

(5) A person giving a certificate of competence under paragraph (2) of this Regulation shall give the same to the employer for the time being of the person in respect of whose competence the certificate is given, and that employer shall preserve that certificate while the person in respect of whose competence the certificate is given continues to be employed by him and for a period of two years after the cessation of such employment, and shall furnish any person by whom he is subsequently employed as a pilot with a copy of any such certificate on being requested so to do.

46. With reference to Article 18 (5) of the Order, the particulars first therein referred to, to be contained in an operations manual, are the following:—

(*a*) In respect of a flight on a scheduled journey—

(i) instructions outlining the responsibilities of operations personnel relating to the conduct of flight operations;

(ii) particulars of the operating crew to be carried in the aircraft on each stage of the route to be flown, including instructions as to the person to be in command of the aircraft and as to the order and circumstances in which such command should be assumed by other persons ;

(iii) emergency flight procedures ;

(iv) the minimum altitudes for safe flight on each stage of the route to be flown ;

(v) the circumstances in which a radio listening watch must be maintained ;

(vi) a list of the navigational equipment to be carried in the aircraft ;

(vii) instructions as to the manner of computing the quantities of fuel and oil to be carried by the aircraft on each stage of the route to be flown. Such instructions shall take account of all circumstances likely to be encountered on the flight including the possibility of failure of one or more of the aircraft engines whilst en route ;

(viii) the conditions under which oxygen is to be used ;

(ix) a route guide (which may be a separate document but which in that case must be connected with the operations manual), containing information relating to communication and search and rescue facilities, navigational aids, aerodromes, in-flight procedures, instrument approach and landing procedures and such other information as the operator may deem necessary for the proper conduct of flight operations ;

(x) weather minima (as defined in Article 20 of the Order) appropriate to the aircraft and any aid to be used for the aerodrome of departure, for the aerodrome of intended landing and for each alternate aerodrome.

(*b*) In respect of a flight other than a flight on a scheduled journey—

(i) instructions outlining the responsibilities of operations personnel relating to the conduct of flight operations ;

(ii) particulars of the operating crew to be carried in the aircraft for each type of operation to be conducted, including instructions as to the person to be in command of the aircraft and as to the order and circumstances in which such command should be assumed by other persons ;

(iii) emergency flight procedures ;

(iv) information as to the basis on which the minimum altitudes for safe flight should be calculated. For a route which is in frequent use the minimum altitudes for safe flight on each stage of the route should be stated ;

(v) the circumstances in which a radio listening watch must be maintained ;

(vi) a list of the navigational equipment to be carried in the aircraft ;

(vii) instructions as to the manner of computing the quantities of fuel and oil to be carried by the aircraft on each stage of the route to be flown. Such instructions shall take account of all circumstances likely to be encountered on the flight including the possibility of failure of one or more of the aircraft engines whilst en route ;

(viii) the conditions under which oxygen is to be used ;

(ix) instructions as to the means of obtaining information relating to communication and search and rescue facilities, navigational aids, aerodromes, in-flight procedures, instrument approach and landing procedures and such other information as the operator may deem necessary for the proper conduct of flight operations ; provided that for a route which is in frequent use, there shall be a route guide (which may be a separate document but which in that case must be connected with the operations manual), containing such information ;

(x) weather minima (as defined by Article 20 of the Order) for take-off and landing appropriate to the aircraft and any aid used, and instructions as to the increases which are to be applied to them by the person in command to make them appropriate to particular aerodromes.

PART VI

OVERHAUL, ETC., OF AIRCRAFT AND LICENSING OF AIRCRAFT MAINTENANCE ENGINEERS

General

47. In this Part, 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

48. With reference to Article 14 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 Regulation 49.

(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

49. 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 50 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

50. The following provisions shall apply to or in relation to every certificate given under Regulation 49:—

(1) The certificate shall be signed and dated by the holder of an aircraft maintenance engineer's licence granted or rendered valid under the Order, by the authorised representative of any firm or company approved as qualified to furnish such a certificate, or by any person so approved;

(2) the certificate shall set out particulars of the overhaul, repair, replacement or modification to which shall be appended the following words:—

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 .....

(3) If the certificate is not written in the aircraft log book, engine log book or propeller log book, whichever is appropriate, kept in respect of the aircraft, the operator shall preserve the certificate for a period of two years and shall, as soon as is reasonably practicable and in any case within six months of the giving of the certificate, cause particulars sufficient to identify the certificate to be written in such log book;

(4) if such log books as aforesaid are not required to be kept in respect of the aircraft, the operator shall provide a book which shall be deemed to be the appropriate log book for the purposes of paragraph (3) of this Regulation.

51. With reference to Article 15 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

52.—(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

53. 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

54. 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 of work done under approved maintenance schedules.

(iii) Certification of repairs approved as minor repairs.

(iv) Certification of modifications approved as minor modifications.

(v) 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 of work done under approved maintenance schedules.

(iii) 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.

55. With reference to Article 27 of the Order, application for the issue of a journey log book (Form C.A. 26) in respect of an aircraft should be made, accompanied by the appropriate fee, to the Secretary, Ministry of Transport and Civil Aviation, London. 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 Transport and Civil Aviation before issue.

56. 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.

57. Entries in journey log books, other than entries made by the Ministry of Transport and 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.

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

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

59. 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 58, 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.)

60. 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 50, 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.

61. 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.

62. 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.

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

PART VII

Carriage of Operating Crew

64. With reference to Article 22 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

65. For the purposes of paragraph (2) of Article 22 of the Order the number and description of the members of the operating crew of an aircraft registered in the United Kingdom shall be :—

(1) If a certificate of airworthiness in respect of the aircraft is in force, on all flights at least the number and description of persons specified as the minimum operating crew for that aircraft in the certificate of airworthiness.

(2) If no certificate of airworthiness in respect of the aircraft is in force, but a certificate of airworthiness in respect of that aircraft has previously been in force, on all flights at least the number and description of persons specified as the minimum operating crew in the certificate of airworthiness last in force in respect of that aircraft.

(3) If no certificate of airworthiness in respect of the aircraft is or has been in force and the aircraft is a series aircraft conforming with a prototype or prototype (modified) aircraft in respect of which a certificate of airworthiness has been issued, on all flights at least the number and description of persons specified as the minimum operating crew in that certificate of airworthiness.

(4) In all other cases at least the number and description of persons sufficient to ensure the safety of the aircraft on any flight which is undertaken.

Carriage of a flight engineer

66. Where a flight engineer is required by the terms of the certificate of airworthiness to be carried in an aircraft and a separate flight engineer's station is incorporated in the design of the aircraft a flight engineer, qualified under the terms of his licence to act in that capacity in the aircraft, shall be carried and assigned for duties only at the said station unless the operating crew includes a person, licensed for flight duties in another capacity and being also the holder of the appropriate flight engineer's licence who could, without interference with his normal duties, carry out satisfactorily the duties also of flight engineer, in which case that person may act in the capacity of flight engineer.

Carriage of additional pilots

67.—(1) When an aircraft carries two or more pilots as members of the operating crew—

(*a*) one of them shall, before the flight commences, be designated by the the operator of the aircraft as the senior pilot and the other pilots shall act only under his direction ;

(*b*) two pilots shall remain at the controls when the aircraft is departing from or landing at an aerodrome ; and

(*c*) at least one pilot shall remain at the controls at all times during flight.

(2) A public transport flying machine having a maximum total weight authorised of more than 22,500 lb. when departing from or arriving at an aerodrome in IFR weather conditions shall carry, to act in the capacity of second pilot and for the particular purpose of assisting the senior pilot during such departure and arrival 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

68.—(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 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.

69. The foregoing regulations in this Part have effect subject to the provisions of the proviso to Article 22 (2) of the Order as to the powers of the Minister.

PART VIII

Student Pilot's Licence

70. With reference to Article 25 of the Order, application for the grant or renewal of a student pilot's licence should be made to the Secretary, Ministry of Transport and Civil Aviation, London, on a form which will be supplied by him on request.

Age of Applicant and Period of Licence

71.—(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 73) 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

72.—(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 Regulations 191 to 213 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 194 and 195.

Conditions of Licence

73. A licence

(*a*) shall entitle the holder thereof, subject to the provisions of sub-paragraphs (*c*) and (*d*) in paragraph (1) of Regulation 74, 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.

PART IX

Practice Flights

74. With reference to Article 21 (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 25 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;

(*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

75. With reference to Article 21 (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

76. With reference to Article 45 (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.

PART X

Licensing of Members of Operating Crew

General

77. With reference to Articles 23 and 24 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 Transport and Civil Aviation, London, on a form which will be supplied by him on request.

78. 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 23 of the Order are specified in this Part as indicated hereunder. Part IX 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 83 to 128 (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

79. An applicant who has at any time qualified as a pilot of flying machines in any of Her 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 Part 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

80.—(1) The holder of a licence which includes an instrument rating shall not be entitled to exercise the privilege of the rating, unless he has during the immediately preceding thirteen months passed an instrument flying test including, if appropriate, asymetric power tests, and a certificate by the approved examiner to that effect is entered in the certificate of validity relating to the licence.

(2) For the purposes of this Regulation an "instrument rating" means a rating entitling the holder of the licence in which it is included to fly as pilot in charge under Instrument Flight Rules in accordance with the provisions of sub-paragraph (*a*) of paragraph (2) of Rule 33 in Schedule II to the Order.

Requirements for obtaining Rating

81. 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.

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

82. The details of the instrument flying tests (including asymmetric power tests) and the technical examination referred to in Regulations 80 and 81 are specified in handbook C.A.P. 56, "Instrument Rating", copies of which may be obtained on application to the Secretary, Ministry of Transport and Civil Aviation, London.

PRIVATE PILOT'S LICENCE (FLYING MACHINES)

Age of Applicant and Period of Licence

83.—(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 40 years of age; or

(*b*) twelve months if the applicant is 40 years of age or more.

Privileges attaching to Licence

84. 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

85. 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

86. 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—

(i) in the case of an applicant who has experience in the flying of gliders the foregoing requirements, excepting those in respect of cross-country flying, may be reduced to such extent as the Minister may consider appropriate in the particular case; and

(ii) 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

87. The applicant shall, subject to the provisions of Regulation 89, be required to demonstrate in the course of general flying tests his competence to carry out normal and emergency manoeuvres on the class, group or type of flying machine to which the application relates.

Technical examination

88. The applicant shall, subject to the provisions of Regulation 89, 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

89. 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) has satisfied an approved examiner within the period of one year immediately preceding the date of the application for the licence that he is competent to operate the class or type of flying machine to which the application relates.

For the purpose of this Regulation the expression "an approved examiner" means:—

(*a*) an Official Observer of the Royal Aero Club, or

(*b*) A person who has been authorised in writing by the Minister to conduct the flying tests or technical examinations.

Syllabuses of Practical Flying Tests and Technical Examination

90. The details of the practical flying tests, including the conditions applicable thereto, and the technical examination referred to in Regulations 87 and 88 are specified in handbook C.A.P. 53 "Private Pilot's Licence", copies of which may be obtained on application to the Secretary, Ministry of Transport and Civil Aviation, London.

Night Rating

91.—(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

92. 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 and, if the application is in respect of aeroplanes in Group C, reasonable flying experience as pilot in charge on each type of aeroplane 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

93. 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 87 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 has satisfied an approved examiner within the period of two years immediately preceding the date of the application for the extension of the rating that he is competent to operate the class or type of flying machine to which the application relates.

For the purpose of this Regulation the expression "an approved examiner" means:—

(*a*) an Official Observer of the Royal Aero Club or

(*b*) a person who has been authorised in writing by the Minister to conduct the flying tests or technical examinations.

COMMERCIAL PILOT'S LICENCE (FLYING MACHINES)

Age of Applicant and Period of Licence

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

95. 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

96. 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 97, 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

97. 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*) if the licence includes an instrument rating, any public transport flying machine of which the maximum total weight authorised does not exceed 12,500 lb.; and

(*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 the maximum total weight authorised of which does not exceed 12,500 lb. if an aeroplane of the same class 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

98. An applicant for the grant of a licence shall, subject to the provisions of Regulation 102, 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

99. The applicant shall, subject to the provisions of Regulation 102, 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

100. The applicant shall, subject to the provisions of Regulation 102, 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

101. The details of the practical flying tests, including the conditions applicable thereto, and the technical examination referred to in Regulations 99 and 100 are specified in handbook C.A.P. 54, "Commercial Pilot's Licence", copies of which may be obtained on application to the Secretary, Ministry of Transport and Civil Aviation, London.

Exemptions

102. 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 98, 99 and 100. 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

103. 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

104. 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 101.

SENIOR COMMERCIAL PILOT'S LICENCE (FLYING MACHINES)

Age of Applicant and Period of Licence

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

106. 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

107. 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 108, 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

108.—(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 30,000 lb.,

(*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 the maximum total weight authorised of which does not exceed 12,500 lb. if an aeroplane of the same class is specified in Group 1 of the aircraft rating of the licence ;

(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

109. An applicant for the grant of a licence shall be required to satisfy the requirements for an instrument rating specified in Regulation 81: 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

110. The applicant shall, subject to the provisions of Regulation 114, 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 15 hours' flying by night and in addition at least 10 hours' cross-country or oversea flying either by night or solely by reference to instruments ; and

(iii) 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 (i) 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; and (ii) that no evidence of experience of flying solely by reference to instruments produced in order to obtain an instrument rating shall be taken into account for the purposes of this Regulation.

Practical Flying Tests

111. The applicant shall, subject to the provisions of Regulation 114, 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

112. The applicant shall, subject to the provisions of Regulation 114, 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

113. The details of the practical flying tests, including the conditions applicable thereto, and the technical examination referred to in Regulations 111 and 112 are specified in handbook C.A.P. 55, "Senior Commercial Pilot's Licence", copies of which may be obtained on application to the Secretary, Ministry of Transport and Civil Aviation, London.

Exemptions

114.—(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 110, 111 and 112. 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

115. 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

116. 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 113.

AIRLINE TRANSPORT PILOT'S LICENCE (FLYING MACHINES)

Age of Applicant and Period of Licence

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

118. 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

119. 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 120, 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

120.—(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 the maximum total weight authorised of which does not exceed 12,500 lb. if an aeroplane of the same class is specified in Group 1 of the aircraft rating of the licence ;

(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

121. An applicant for the grant of a licence shall be required to satisfy the requirements for an instrument rating specified in Regulation 81: 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

122. The applicant shall, subject to the provisions of Regulation 126, 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

123. The applicant shall, subject to the provisions of Regulation 126, 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

124. The applicant shall, subject to the provisions of Regulation 126, 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

125. The details of the practical flying tests, including the conditions applicable thereto, and the technical examination referred to in Regulations 123 and 124 are specified in handbook C.A.P. 55, "Airline Transport Pilot's Licence", copies of which may be obtained on application to the Secretary, Ministry of Transport and Civil Aviation, London.

Exemptions

126. (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 122, 123 and 124. 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

127. 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

128. 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 125.

PRIVATE PILOT'S LICENCE (BALLOONS)

Age of Applicant and Period of Licence

129.—(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

130. A licence shall include an aircraft rating specifying the types of balloons which, subject to Regulation 131, the holder is entitled to fly.

Privileges attaching to Licence

131. 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

132. 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

133. 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 Her 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

134. 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

135.—(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

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

Privileges attaching to Licence

137. The licence shall entitle the holder to fly as pilot of any type of free balloon, and, subject to the requirements of Article 38 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

138. 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

139. The applicant shall, subject to the provisions of Regulation 142, be required to carry out the practical flying tests specified in Regulation 132 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

140. The applicant shall, subject to the provisions of Regulation 142, 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

141. The following additional tests and examination shall, subject to the provisions of Regulation 142, 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

142. An applicant who has at any time qualified as a pilot of balloons or airships in any of Her 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 140.

Flying Experience for Renewal of Licence

143. 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

144.—(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

145. A licence shall include an aircraft rating specifying the types of airships which, subject to Regulation 146, the holder is entitled to fly.

Privileges attaching to Licence

146.—(*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

147. 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

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*) 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

149. The applicant shall, subject to the provisions of Regulation 159, 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

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.

Second Class Licence

151. 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

152. 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

153. The applicant shall, subject to the provisions of Regulation 159, 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

154. 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

155. 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

156. 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

157. The applicant shall subject to the provisions of Regulation 159, 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

158. 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

159. An applicant who has at any time qualified as a pilot of airships in any of Her 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

160.—(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

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

(*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

163. 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

164. (i) The applicant shall, subject to the provisions of Regulation 166, 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 observaion 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 test 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

165. The applicant shall, subject to the provisions of Regulation 166, 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

166. 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 Her 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 165 and from the flying tests specified at (*a*) and (*b*) in paragraph (i) of Regulation 164.

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 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 164.

COMMERCIAL PILOT'S LICENCE (TRAILING GLIDERS)

Age of Applicant and Period of Licence

168.—(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

169. A licence shall include an aircraft rating specifying the types of gliders which, subject to Regulation 170, the holder is entitled to fly.

Privileges attaching to Licence

170. 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

171. The applicant shall, subject to the provisions of Regulation 174, 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

172. The applicant shall, subject to the provisions of Regulation 174, undergo such practical flying tests as the Minister may require.

Technical Examination

173. 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;

(*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

174.—(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 172 and 173.

(ii) an applicant who produces satisfactory evidence that he has at any time been employed as a pilot of gliders in any of Her 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 173;

(iii) an applicant who does not satisfy the night flying requirements specified in Regulation 171 or which may be required under Regulation 172 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

175. 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

176. 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

177.—(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 of any renewal thereof, shall not exceed twelve months.

Privileges attaching to Licence

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

Technical Requirements for Grant of Licence

Flying Experience

179. The applicant shall, subject to the provisions of Regulation 182, 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 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

180. The applicant shall, subject to the provisions of Regulation 182, 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.

181. The details of the technical examination and the requirements as to the evidence to be furnished of flying experience are specified in handbook C.A.P. 40, "Flight Navigator's Licence", copies of which may be obtained on application to the Secretary, Ministry of Transport and Civil Aviation, London.

Exemptions

182. At the discretion of the Minister, an applicant who has at any time qualified as a flight navigator in any of Her 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 179 and 180.

Renewal of Licence

183. 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 ENGINEER'S LICENCE

Age of Applicant and Period of Licence

184.—(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

185. 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

186. The applicant shall, subject to the provisions of Regulation 188, 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

187. The applicant shall, subject to the provisions of Regulation 188, 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

188. An applicant who has at any time served as a flight engineer in any of Her 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 186 and 187.

Renewal of Licence

189. 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

190. 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 186. He may also, at the discretion of the Minister, be required to undergo all or any part of the technical examination specified in Regulation 187.

MEDICAL REQUIREMENTS

191. 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 197. The examination will be based upon the requirements specified in Regulations 199 to 213:

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. 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.

192. The medical examinations, excepting, however, the examination referred to in proviso (ii) to Regulation 191, shall be carried out as follows:—

(*a*) in the case of a student or 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 Form C.A. 541 (Initial Examination) or Form C.A. 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 Transport and Civil Aviation, London (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 engineer's licence, 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 Transport and Civil Aviation, London.

193. 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.

194. 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.

195.—(1) If the holder of a licence

(*a*) suffers any personal injury as the result of an accident occuring 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 Transport and Civil Aviation, London, 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 Transport and 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.

196. The medical examinations required for the purpose of Regulation 195 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 191.

Standards of Fitness

197. 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. 1
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

198. 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.

PHYSICAL REQUIREMENTS

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

(*b*) The medical examination will include a full inquiry 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, or presumptive evidence of latent epilepsy. He shall be required to be free from any progressive disease of the nervous system and from any non-progressive disease of that system, the effects of which are likely to interfere with the safe handling of an aircraft. Cases of past or present insanity and cases in which syphilis, past or present, has affected the central nervous system 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 until such time as the medical examiner is satisfied that the effects of the concussion or fracture are no longer likely to jeopardise safety in flight. If the applicant has been incapacitated for a period in excess of one month the licence if renewed will be 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 is satisfied 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 or meninges 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.

(*d*) *General surgical examination*

The applicant shall be required to be completely free from hernia.

Cases of active disease of the bones, joints, muscles or tendons and all serious functional sequelae of congenital or acquired disease will be assessed as unfit. Cases of functional after affects of lesions affecting the bones, joints, muscles or tendons and certain anatomical defects compatible with the safe handling of aircraft at any altitude throughout a prolonged or difficult flight may be assessed as fit.

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

Cases of extensive mutilation of the chest wall with collapse of the thoracic cage and sequelae of surgical procedures resulting in decreased respiratory efficiency at altitude will be assessed as unfit.

Cases of sequelae of disease or surgical procedures on the kidneys and the urinary tracts liable to cause sudden incapacity, in particular any obstructions due to stricture or compression will be assessed as unfit. Cases of compensated nephrectomy without hypertension or uraemia may be assessed as fit.

An applicant who has undergone a major surgical operation on the biliary passages or the digestive tract or its adnexae, or the urinary system, which has involved a total or partial excision or a diversion of any of these organs will be assessed as unfit until such time as the medical examiner having access to the details of the operation concerned considers that the effects of the operation are not liable to cause sudden incapacity in the air.

(*e*) *General medical examination*

The heart shall not possess any abnormality, congenital or acquired, which is likely to interfere with the safe handling of aircraft. 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 significant functional nor structural abnormality of the circulatory tree.

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, radiography will form a part of the chest examination, and similar radiographic examinations will be carried out as necessary thereafter.

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

Cases of active pulmonary tuberculosis 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 for a period of three months. Thereafter, provided there continues to be no sign of extension of the disease as shown by radiographic examinations carried out at the end of each three months' period, the validity of the licence 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 disabling disease with important impairment of the functioning of the gastro-intestinal tract and its adnexae will be assessed as unfit.

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

Cases of severe and moderate enlargement of the spleen persistently below the costal margin will be assessed as unfit.

Cases of significant localized and general 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 abnormal element considered by the medical examiner to be pathological. Cases of affections of the urinary passages and of the genital organs will be assessed as unfit ; those due to transient conditions may be assessed as temporarily unfit.

An applicant who has a personal history of syphilis shall be required to furnish evidence, satisfactory to the medical examiner, that he has undergone adequate treatment. 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 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.

Applicants of the female sex who have a history of severe menstrual disturbances that have proven unamenable to treatment and that are likely to interfere with the safe handling of aircraft will be assessed as unfit.

In the event of 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 the licence until she has undergone a medical examination and been assessed as fit. Cases of applicants of the female sex who have undergone gynaecological operations will be considered individually.

(*f*) *Eye Examination*

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

(*Note:* The details of the Visual Requirements are specified in Regulations 202 to 205 and those for Colour Perception in Regulations 206 to 208.)

(*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 membranes except that a dry perforation of non-infectious origin need not render the applicant unfit;

(iii) no permanent obstruction of the Eustachian tubes;

(iv) no permanent disturbances of the vestibular apparatus.

(*Note:* The details of the Hearing Requirements are specified in Regulations 209 to 213.)

(*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. Applicants with significant defects of speech will be assessed as unfit.

200. *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 such active or latent, acute, or chronic, physical disability, as would entail a degree of functional incapacity which is likely to interfere with the safe performance of the duties at any altitude throughout a prolonged or difficult flight.

(*b*) The medical examination will include a full inquiry 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, or presumptive evidence of latent epilepsy. He shall be required to be free from any progressive disease of the nervous system and from any non-progressive disease of that system, the effects of which are likely to interfere with the safe performance of the duties. Cases of past or present insanity and 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 until such time as the medical examiner is satisfied that the effects of the concussion or fracture are no longer likely to jeopardise safety in flight. If the applicant has been incapacitated for a period in excess of one month the licence if renewed will be 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 is satisfied 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 or meninges 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.

(*d*) *General surgical examination*

The applicant shall required to be completely free from hernia.

Cases of active disease of the bones, joints, muscles or tendons and all serious functional sequelae of congenital or acquired disease will be assessed as unfit. Cases of functional after effects of lesions affecting the bones, joints, muscles or tendons and certain anatomical defects compatible with the safe performance of the duties may be assessed as fit.

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

Cases of extensive mutilation of the chest wall with collapse of the thoracic cage and sequelae of surgical procedures resulting in decreased respiratory efficiency at altitude will be assessed as unfit.

Cases of sequelae of disease or surgical procedures on the kidneys and the urinary tracts liable to cause sudden incapacity, in particular any obstructions due to stricture or compression will be assessed as unfit. Cases of compensated nephrectomy without hypertension or uraemia may be assessed as fit.

An applicant who has undergone a major surgical operation on the biliary passages or the digestive tract or its adnexae, or the urinary system, which has involved a total or partial excision or a diversion of any of these organs will be assessed as unfit until such time as the medical examiner having access to the details of the operation concerned considers that the effects of the operation are not liable to cause sudden incapacity in the air.

(e) *General medical examination*

The heart shall not possess any abnormality, congenital or acquired, which is likely to interfere with the safe performance of the duties. 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 significant functional nor structural abnormality of the circulatory tree.

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, radiography will form a part of the chest examination, and similar radiographic examinations will be carried out as necessary thereafter.

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

Cases of active pulmonary tuberculosis 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 for a period of three months. Thereafter, provided there continues to be no sign of extension of the disease as shown by radiographic examinations carried out at the end of each three months' period, the validity of the licence 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 disabling disease with important impairment of the functioning of the gastro-intestinal tract and its adnexae will be assessed as unfit.

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

Cases of severe and moderate enlargement of the spleen persistently below the costal margin will be assessed as unfit.

Cases of significant localised and general 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 abnormal element considered by the medical examiner to be pathological. Cases of affections of the urinary passages and of the genital organs will be assessed as unfit; those due to transient conditions may be assessed as temporarily unfit.

An applicant who has a personal history of syphilis shall be required to furnish evidence, satisfactory to the medical examiner, that he has undergone adequate treatment. 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 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.

Applicants of the female sex who have a history of severe menstrual disturbances that have proven unamenable to treatment and that are likely to interfere with the safe performance of the duties will be assessed as unfit.

In the event of 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 the licence until she has undergone a medical examination and been assessed as fit. Cases of applicants of the female sex who have undergone gynaecological operations will be considered individually.

(*f*) *Eye examination*

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

(*Note :* The details of the Visual Requirements are specified in Regulations 202 to 205 and those for Colour Perception in Regulations 206 to 208).

(*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 membranes except that a dry perforation of non-infectious origin need not render the applicant unfit;

(iii) no permanent obstruction of the Eustachian tubes;

(iv) no permanent disturbances of the vestibular apparatus.

(*Note :* The details of the Hearing Requirements are specified in Regulations 209 to 213).

(*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. Applicants with significant defects of speech will be assessed as unfit.

201. *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 likely to interfere with the safe handling of aircraft under ordinary condition of flight.

(*b*) The medical examination will include a full inquiry 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, or presumptive evidence of latent epilepsy. He shall be required to be free from any progressive disease of the nervous system and from any non-progressive disease of that system, the effects of which are likely to interfere with the safe handling of aircraft in flight. Cases of past or present insanity and 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 until such time as the medical examiner is satisfied that the effects of the concussion or fracture are no longer likely to jeopardise safety in flight.

(ii) Cases of head injury associated with intracranial injuries will be assessed as permanently unfit if a local lesion of the brain or meninges 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; cases repaired by plates ensuring present and future integrity of the central nervous system may be assessed as fit subject to a period of one year elapsing from the time of the repair.

(*d*) *General surgical examination*

The presence of hernia will not necessarily entail an assessment of unfitness. Cases in which the medical examiner is satisfied that a well fitting appliance will adequately control the hernia may be assessed as fit, subject to the appliance being worn by the applicant whilst exercising the privileges of the licence.

Cases of active disease of the bones, joints, muscles or tendons and all serious functional sequelae of congenital or acquired disease will be assessed as unfit. Cases of certain qualifying functional after effects of lesions affecting the bones, joints, muscles or tendons and certain anatomical defects compatible with the safe handling of aircraft in flight may be assessed as fit.

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

Cases of extensive mutilation of the chest wall with collapse of the thoracic cage and sequelae of surgical procedures resulting in decreased respiratory efficiency at altitude will be assessed as unfit.

Cases of sequelae of disease or surgical procedures on the kidneys and the urinary tracts liable to cause sudden incapacity, in particular any obstructions due to stricture or compression will be assessed as unfit. Cases of compensated nephrectomy without hypertension or uraemia may be assessed as fit.

An applicant who has undergone a major surgical operation on the biliary passages or the digestive tract or its adnexae, or the urinary system, which has involved a total or partial excision or a diversion of any of these organs will be assessed as unfit until such time as the medical examiner having access to the details of the operation concerned considers that the effects of the operation are not liable to cause sudden incapacity in the air.

(*e*) *General medical examination*

The heart shall not possess any abnormality, congenital or acquired, which is likely to interfere with the safe handling of aircraft in flight. 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 significant functional nor structural abnormality of the circulatory tree. The presence of varicosities will not necessarily entail an assessment of unfitness.

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

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

Cases of active pulmonary tuberculosis 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 disabling disease with important impairment of the functioning of the gastro-intestinal tract and its adnexae will be assessed as unfit.

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

Cases of significant localized and general 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 abnormal element considered by the medical examiner to be pathological. Cases of affections of the urinary passages and of the genital organs will be assessed as unfit; those due to transient conditions may be assessed as temporarily unfit.

An applicant who has a personal history of syphilis shall be required to furnish evidence, satisfactory to the medical examiner, that he has undergone adequate treatment.

In the event of 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 the licence until she has undergone a 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 likely to interfere with its proper function to an extent that would jeopardise safety in flight.

(*Note:* The details of the Visual Requirements are specified in Regulations 202 to 205 and those for Colour Perception in Regulations 206 to 208.)

(*g*) *Ear examination*

There shall be:—

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

(ii) no permanent disturbances of the vestibular apparatus.

(*Note:* The details of the Hearing Requirements are specified in Regulations 209 to 213.)

(*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. Applicants with significant defects of speech will be assessed as unfit.

Visual Requirements

202. 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 sixty lux and placed at distance of twenty feet from the applicant.

203. *Visual standard No.* 1.—The applicant shall be required to have:

(*a*) a distance visual acuity of at least 6/18 in each eye separately without correction: provided that each eye is capable of correction to 6/6 and if the uncorrected vision in one eye or both eyes is less than 6/12 glasses giving an acuity of at least 6/6 in the defective eye or eyes shall be worn while exercising the privileges of the licence;

(*b*) a near visual acuity of Jaeger 1 in each eye with correcting glasses if necessary;

(*c*) not more than +2·25 dioptres of hypermetropia;

(*d*) not more than 1 dioptre of hyperphoria;

(*e*) not more than 6 dioptres of esophoria;

(*f*) not more than 6 dioptres of exophoria;

(*g*) accommodation within ±3 dioptres of the average for the age;

(*h*) normal fields of vision.

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

(*a*) a distant visual acuity of at least 6/60 in each eye separately without correction: provided that one eye is capable of correction to 6/6 and the other to 6/18 and if the uncorrected vision in one eye or both eyes is less than 6/12 glasses giving an acuity of at least 6/6 in one eye and at least 6/18 in the other eye shall be worn whilst exercising the privileges of the licence;

(*b*) a near visual acuity of Jaeger 1 in the better eye and Jaeger 8 in the other eye with correcting glasses if necessary ;

(*c*) accommodation within ± 3 dioptres of the average for the age ;

(*d*) normal fields of vision.

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

(*a*) a distant visual acuity of at least 6/60 in each eye separately without correction: provided that one eye is capable of correction to 6/6 and the other to 6/12 and if the uncorrected vision in one eye or both eyes is less than 6/12 glasses giving an acuity of at least 6/6 in one eye and at least 6/12 in the other eye shall be worn whilst exercising the privileges of the licence ;

(*b*) a near vision of Jaeger 1 in the better eye and Jaeger 8 in the other eye with correcting glasses if necessary ;

(*c*) ocular muscle balance giving full movements of each eye with no diplopia in any part of the visual field ;

(*d*) normal fields of vision.

Colour Perception Requirements

206. 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.

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

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

Hearing Requirements

209. 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.

210. *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.

211. *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.

212. *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.

213. *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.

PART XI

TOWING

General

214. With reference to Article 45 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 Transport and Civil Aviation, London.

215. 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 217.

216. 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

217.—(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 Her 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.

PART XII

Flying Instruction

General

218. With reference to Article 26 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 Transport and Civil Aviation, London. 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 Part for flying machines, may be subject to such modifications as the Minister may consider appropriate in the particular case.

219. A rating may be included in a licence entitling the holder thereof to give instruction in flying in the capacity either of Instructor or of Assistant Instructor according to the qualifications of the applicant.

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.

(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 satisfied that the applicant has 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 Her 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 Her 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.

PART XIII

CAPTIVE BALLOONS, KITES AND MOORED AIRSHIPS

General

225. With reference to Article 38 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 Transport and Civil Aviation, London, 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 shown 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 show a group of two steady lights consisting of an unobstructed white light of at least 5 candles

placed 12 feet vertically above an unobstructed red light of at least 5 candles both being visible, so far as is reasonably practicable, in all directions, 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 show by night at or near the rear an unobstructed white light of at least 5 candles showing, so far as is reasonably practicable, in all directions:

(ii) when moored to the surface of the ground or water by a cable the airship shall show the following steady lights:—

(*a*) an unobstructed white light of at least 5 candles showing ahead through angles of 110° from dead ahead to each side in its horizontal plane;

(*b*) an unobstructed white light of at least 5 candles showing astern through angles of 70° from dead astern to each side in its horizontal plane;

(*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 it is necessary to fit more than one lamp in order to show a light required by sub-paragraph A or sub-paragraph B of this Regulation, such lamps shall be fitted and constructed so that so far as is reasonably practicable not more than one is visible from any one point;

(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 making way and not being under command, shall show only the lights required by the Rules of the Air and Air Traffic Control in Schedule II to the Order to be shown until it is finally made fast.

229. Regulations 227 and 228 have effect subject to the provisions of Article 38 of the Order as to the powers of the Minister.

PART XIV

AERODROMES

230. With reference to Article 56 of the Order, the conditions under which noise and vibration may be caused by aircraft (including military aircraft) on Government aerodromes, licensed aerodromes or on aerodromes at which the manufacture, repair or maintenance of aircraft is carried out by persons carrying on business as manufacturers or repairers of aircraft, shall be as follows, that is to say, that, whether in the course of the manufacture of the aircraft or otherwise,—

(*a*) the aircraft is taking off or landing, or

(*b*) the aircraft is moving on the ground or on water, or

(*c*) the engines are being operated in the aircraft

(i) for the purpose of ensuring their satisfactory performance,

(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,

and also such special conditions, if any, as may be prescribed as respects any such aerodrome as aforesaid.

231. With reference to Article 50 of the Order, application for the grant or renewal of an aerodrome licence should be made to the Secretary, Ministry of Transport and Civil Aviation, London, 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.

Signed by order of the Minister of Transport and Civil Aviation this eighth day of July, 1954.

Gilmour Jenkins,
Secretary of the
Ministry of Transport and Civil Aviation.

A TABLE SHOWING THE COMPARABLE PROVISIONS OF THE AIR NAVIGATION (GENERAL) REGULATIONS, 1949

NOTE: Where the provision in these Regulations differs from that in the Air Navigation (General) Regulations, 1949, as amended, the Regulation number is shown in italics and underlined.

Regulation	Corresponding Regulations in A.N. (General) Regulations, 1949, as amended	Regulation	Corresponding Regulations in A.N. (General) Regulations, 1949, as amended
1	236	48	40
2	236	49	41
3	2	*50*	42
4	4	*51*	43
5	5	52	44
6	6	53	45
7	7	*54*	46
8	8	*55*	47
9	9	56	48
10	10	57	49
11	11	58	50
12	12	59	51
13	13	60	52
14	14	61	53
15	15	62	54
16	16	63	55
17	17	64	56
18	18	65	57
19	19	66	58
20	20	67	59
21	21	68	60
22	22	69	61
23	23	70	62
24	24	71	63
25	25	72	64
26	26	73	65
27	27	*74*	66
28	28	*75*	67
29	29	76	68
30	30	77	69
31	31	78	70
32	32	79	71
33	33	*80*	72
34	33A	*81*	73
35	33B	82	74
36	34	*83*	75
37	34A	*84*	76
38	34B	85	77
39	35	86	78
40	35A	87	79
41	36	88	80
42	37	*89*	81
43	38	*90*	82
44	38A, 38B, 38F	91	83
45	38C, 38D, 38E	92	84
46	38G	*93*	85
47	39	*94*	86

Regulation	Corresponding Regulations in A.N. (General) Regulations, 1949, as amended
95	87
96	88
97	89
98	90
99	91
100	92
101	93
102	94
103	95
104	96
105	97
106	98
107	99
108	100
109	101
110	102
111	103
112	104
113	105
114	106
115	107
116	108
117	109
118	110
119	111
120	112
121	113
122	114
123	115
124	116
125	117
126	118
127	119
128	120
129	121
130	122
131	123
132	124
133	125
134	126
135	127
136	128
137	129
138	130
139	131
140	132
141	133
142	134
143	135
144	136
145	137
146	138
147	139
148	140
149	141
150	142
151	143
152	144
153	145
154	146
155	147
156	148
157	149
158	150
159	151
160	152
161	153
162	154
163	155
164	156
165	157
166	158
167	159
168	160
169	161
170	162
171	163
172	164
173	165
174	166
175	167
176	168
177	169
178	170
179	171
180	172
181	173
182	174
183	175
184	179
185	180
186	181
187	182
188	183
189	184
190	185
191	189
192	190
193	191
194	192
195	193
196	194
197	195
198	196
199	198
200	199
201	200

Regulation	Corresponding Regulations in A.N. (General) Regulations, 1949, as amended	Regulation	Corresponding Regulations in A.N. (General) Regulations, 1949, as amended
202	201	217	216
203	202	218	217
204	203	219	218
205	204	220	220 to 232 respectively
206	205	221	
207	206	222	
208	207	223	
209	208	224	
210	209	225	
211	210	226	
212	211	227	
213	212	*228*	
214	213	229	
215	214	230	
216	215	231	
		232	

EXPLANATORY NOTE

(This Note is not part of the Regulations, but is intended to indicate their general purport.)

1. These regulations are made under the Air Navigation Order, 1954, (S.I. 1954/829), which revoked the Air Navigation Order, 1949; they replace the Air Navigation (General) Regulations, 1949, as amended, which were made under the Order of 1949, but make certain changes in their provisions. For convenience of reference, a Table of Comparison, showing for each regulation the corresponding regulation of the Regulations of 1949, as amended, is printed immediately before this explanatory note.

2. Definitions of the various terms used will be found in Regulation 3.

3. The principal changes are as follows:—

(*a*) public transport flying machines, flying at night after 1st January, 1955, will, if their maximum authorised weight exceeds 12,500 lb., be required to be equipped with means of observing the existence and build-up of ice; those authorised to carry more than 19 persons will, when flying at night after 1st January, 1955, be required to have an emergency lighting system (Regulation 24 (7)); for all such machines, the requirements for the carriage and use of oxygen on flights where a height of 10,000 ft. will be reached have been revised (Regulation 24 (8));

(*b*) the requirement for the periodical testing of the competence of the operating crew is extended to cover all public transport aircraft, for all such aircraft there is a new requirement for the testing of personnel, and records of all tests must be made and preserved by the operator of the aircraft (Regulation 44); the provisions requiring pilots of such aircraft, flying on scheduled journeys as defined in the Air Corporations Act, 1949, to be made familiar with the route have been revised (Regulation 45);

(*c*) the maximum period for which a private pilot's licence (flying machines) may be granted is increased to 24 months, for applicants under forty years of age (Regulation 83); tests for the purpose of exemption from

flying tests or technical examination, when applying for such licences or for extensions of such licences, may be made by any person authorised by the Minister to conduct flying tests or technical examinations (Regulations 89 and 93);

(*d*) holders of commercial pilot's licences (flying machines) may fly public transport aircraft up to 12,500 lb. maximum authorised weight on scheduled as well as other journeys, if their licences include an instrument rating (Regulation 97);

(*e*) passengers may be flown by holders of senior commercial pilot's licences (flying machines) in public transport flying machines up to 30,000 lb. maximum authorised weight instead of up to 15,000 lb. (Regulation 108); an amendment is made to the requirements as to previous flying experience for applicants for these licences (Regulation 110);

(*f*) revised medical requirements are prescribed for Physical Standards Nos. 1 to 3 and Visual Standards Nos. 1 to 3 (Regulations 199 to 205); the physical standard required for applicants for commercial pilot's licences (flying machines) has been raised to No. 1 (Regulation 197).

1954 No. 900

The Air Navigation (Radio) Regulations, 1954

Made - - - - 1*st July*, 1954
Coming into Operation 1*st August*, 1954

ARRANGEMENT OF REGULATIONS

		Regulation
PART I	General	1 to 5
PART II	Installation and compulsory carriage of radio apparatus	6 to 9
PART III	Maintenance and overhaul of radio apparatus	10 to 14
PART IV	Operation of radio apparatus	15 to 22
PART V	Licensing of flight radio operators and aircraft radio maintenance engineers	23 to 44

The Minister of Transport and Civil Aviation, in exercise of the powers conferred upon him by the Air Navigation Order, 1954(**a**), and of all other powers enabling him in that behalf, hereby makes the following Regulations.

PART I

GENERAL

1.—(1) These Regulations may be cited as the Air Navigation (Radio) Regulations, 1954.

(2) These Regulations shall come into operation on the first day of August, 1954.

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

"Aeronautical station" means a radiocommunication land station which performs a service with aircraft stations; if, however, it also performs other services, it shall be deemed to be an aeronautical station only during the period of its service with aircraft stations;

"Aircraft station" means a radio station on board an aircraft;

(**a**) S.I. 1954/829, p. 259 above.