1960 No. 1069

The Air Navigation (General) Regulations, 1960

Made - - - - 23*rd June*, 1960
Coming into Operation 15*th August*, 1960

The Minister of Aviation, in exercise of the powers conferred upon him by Articles 21 (2), 23 (4), 24 (1) and (3) and 64 of the Air Navigation Order, 1960(a), and of all other powers enabling him in that behalf, hereby makes the following Regulations:—

Citation and Operation

1. These Regulations may be cited as the Air Navigation (General) Regulations, 1960, and shall come into operation on the 15th day of August, 1960.

Interpretation

2.—(1) In these Regulations "the Order" means the Air Navigation Order, 1960.

(2) Expressions used in these Regulations shall, unless the context otherwise requires, have the same respective meanings as in the Order.

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

Load Sheets

3.—(1) Every load sheet required by Article 23 (4) of the Order shall contain the following particulars:—

(*a*) the nationality mark of the aircraft to which the load sheet relates, and the registration mark assigned to that aircraft by the Minister;

(*b*) particulars of the flight to which the load sheet relates;

(*c*) the total weight of the aircraft as loaded for that flight;

(*d*) the weights of the several items from which the total weight of the aircraft, as so loaded, has been calculated including in particular the weight of the aircraft prepared for service and the respective total weights of the passengers, crew, baggage and cargo intended to be carried on the flight;

(*e*) the manner in which the load is distributed and the resulting position of the centre of gravity of the aircraft which may be given approximately if and to the extent that the relevant certificate of airworthiness so permits;

and shall include at the foot or end of the load sheet a certificate, signed by the person referred to in Article 23 (1) of the Order as responsible for the loading of the aircraft, that the aircraft has been loaded in accordance with the written instructions furnished to him by the operator of the aircraft pursuant to the said Article 23.

(2) For the purpose of calculating the total weight of the aircraft the respective total weights of the passengers and crew entered in the load sheet shall be computed from the actual weight of each person and for that purpose each person shall be separately weighed:

(a) S.I. 1960/972 (Pt. I, p. 599, of this vol.). (b) 52 & 53 Vict. c. 63.

Provided that in the case of an aircraft with a total seating capacity of twelve or more persons and subject to the provisions of paragraph (3) of this Regulation the said weights may be calculated according to the following table, and the load sheet shall bear a notation to that effect.

Table

Males over 12 years of age	165 lb.
Females over 12 years of age	143 lb.
Children aged 2 years or more, but not over 12 years of age	85 lb.
Infants under 2 years of age	17 lb.

(3) The commander of the aircraft shall, if in his opinion it is necessary to do so in the interests of the safety of the aircraft, require any or all of the passengers and crew to be actually weighed for the purpose of the entry to be made in the load sheet.

Minimum weather conditions for take-off, approach to landing and landing by public transport aircraft registered in the United Kingdom

4.—(1) In this Regulation—

" approach to landing " means that portion of the flight of the aircraft in which it is descending below a height of 1,000 feet above the critical height of the relevant minimum for landing;

" cloud ceiling " in relation to an aerodrome means the vertical distance from the elevation of the aerodrome to the lowest part of any cloud visible from the aerodrome which is sufficient to obscure more than one half of the sky so visible;

" critical height " means the minimum height above the elevation of the aerodrome to which an approach to landing can safely be continued without visual reference to the ground;

" minimum weather conditions " in relation to an aerodrome means the cloud ceiling and runway visual range for take-off and the critical height and runway visual range for landing below which the aircraft cannot safely take off or land (as the case may be) at that aerodrome, and the expression " relevant minimum " shall be construed accordingly;

" runway visual range " in relation to a runway or landing strip means the maximum distance in the direction of take-off or landing, as the case may be, at which the runway or landing strip or the markers or lights delineating it can be seen from a point 15 feet above its centre line; and in the case of an aerodrome in the United Kingdom the distance, if any, communicated to the commander of the aircraft by or on behalf of the person in charge of the aerodrome as being the runway visual range shall be taken to be the runway visual range for the time being;

" specified " in relation to an aircraft means specified in or ascertainable by reference to the operations manual relating to that aircraft.

(2) In compliance with Article 21 (2) of the Order and paragraph (xii) of Part A of the Tenth Schedule thereto, the operator of every aircraft to which that Article applies shall establish and include in the operations manual relating to the aircraft, particulars of minimum weather conditions appropriate to every aerodrome of intended departure or landing and every alternate aerodrome:

Provided that, in respect of aerodromes to be used only on a flight which is not a scheduled journey or any part thereof it shall be sufficient to include in the operations manual data and instructions by means of which the appropriate minimum weather conditions can be calculated by the commander of the aircraft.

(3) The minimum weather conditions specified shall not, in respect of any aerodrome, be less favourable than any declared in respect of that aerodrome by the competent authority, unless that authority otherwise permits in writing.

(4) In establishing minimum weather conditions for the purposes of this Regulation the operator of the aircraft shall take into account the following matters:—

(*a*) the type and performance and handling characteristics of the aircraft and any relevant conditions in its certificate of airworthiness;

(*b*) the composition of its crew;

(*c*) the physical characteristics of the relevant aerodrome and its surroundings;

(*d*) the dimensions of the runways which may be selected for use;

(*e*) whether or not there are in use at the relevant aerodrome any aids, visual or otherwise, to assist aircraft in approach, landing or take-off, being aids which the crew of the aircraft are trained and equipped to use; the nature of any such aids that are in use; and the procedures for approach, landing and take-off which may be adopted according to the existence or absence of such aids;

and shall establish in relation to each runway which may be selected for use minimum weather conditions appropriate to each set of circumstances which can reasonably be expected.

(5) With reference to Article 24 (3) of the Order, an aircraft shall not commence a flight at a time when—

(*a*) the cloud ceiling or the runway visual range at the aerodrome of departure is less than the minimum respectively specified for take-off; or

(*b*) according to the information available to the commander of the aircraft it would not be able, without contravening paragraph (6) of this Regulation, to commence or continue an approach to landing at the aerodrome of intended destination at the estimated time of arrival there and at any alternate aerodrome at any time at which according to a reasonable estimate the aircraft would arrive there.

(6) With reference to Article 24 (3) of the Order, an aircraft shall not—

(*a*) commence or continue an approach to landing at any aerodrome if the runway visual range at that aerodrome, established or determined as aforesaid, is at the time less than the relevant minimum for landing; or

(*b*) continue an approach to landing at any aerodrome by flying below the critical height of the relevant minimum for landing if from that height the approach to landing cannot be completed entirely by visual reference to the ground.

(7) If according to the information available an aircraft would as regards any flight be required by the Rules of the Air and Air Traffic Control to be flown in accordance with the Instrument Flight Rules at the aerodrome of intended landing, the commander of the aircraft shall select prior to take-off an alternate aerodrome unless no aerodrome suitable for that purpose is available.

Weight and Performance : General provisions

5.—(1) The assessment of the ability of an aeroplane to comply with the requirements of Regulations 6 to 9 inclusive (relating to weight and performance) shall be based on the specified information as to its performance :

Provided that, if, in the case of an aeroplane in respect of which there is in force under the Order a certificate of airworthiness which does not include a performance group classification, the assessment may be based on the best information available to the commander of the aircraft, in so far as the relevant information is not specified.

(2) In assessing the ability of an aeroplane to comply with condition (7) in the Schedule hereto, conditions (4) and (5) of Regulation 7, and conditions (2) (i) (*b*) and (2) (ii) of Regulation 9, account may be taken of any reduction of the weight of the aeroplane which may be achieved after the failure of a power unit by such jettisoning of fuel as is feasible and prudent in the circumstances of the flight and in accordance with the flight manual included in the certificate of airworthiness relating to the aircraft.

(3) In Regulations 5 to 9, inclusive, and in the Schedule hereto, unless the context otherwise requires :—

" specified " in relation to an aircraft means specified in, or ascertainable by reference to—

(*a*) the certificate of airworthiness in force under the Order in respect of that aircraft ; or

(*b*) the flight manual or performance schedule included in that certificate ;

" 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 ;

" the landing distance available " means the distance from the point on the surface of the aerodrome above which the aeroplane can commence its landing, having regard to the obstructions in its approach path, 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 ;

" 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 one and one half times the take-off run available, whichever is the less ;

" 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.

(4) For the purposes of Regulations 5 to 9 inclusive, and of the Schedule hereto,

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

(*b*) the landing weight of the aeroplane shall be taken to be the weight of the aeroplane at the estimated time of landing allowing for the weight of the fuel and oil expected to be used on the flight to the aerodrome at which it is intended to land or alternate aerodrome, as the case may be;

(*c*) where any distance referred to in paragraph (3) of this Regulation 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, notified, that distance shall be deemed to be the relevant distance.

(5) Nothing in Regulations 5 to 9 inclusive shall apply to any aircraft flying solely for the purpose of training persons to perform duties in aircraft.

Weight and Performance of Public Transport Aeroplanes having no Performance Group Classification in their Certificates of Airworthiness

6. With reference to Article 24 (1) of the Order, an aeroplane registered in the United Kingdom in respect of which there is in force under the Order a certificate of airworthiness which does not include a performance group classification shall not fly for the purpose of public transport, except for the sole purpose of training persons to perform duties in aircraft, unless the weight of the aeroplane at the commencement of the take-off run is such that such of the conditions in the Schedule hereto as apply to that aircraft are satisfied.

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

7. With reference to Article 24 (1) of the Order an aeroplane registered in the United Kingdom in respect of which there is in force under the Order a certificate of airworthiness in which the aeroplane is designated as being of performance group A shall not fly for the purpose of public transport, except for the sole purpose of training persons to perform duties in aircraft, unless the weight of the aeroplane at the commencement of the take-off run is such that the following conditions are satisfied:—

(1) That weight does not exceed the maximum take-off weight for altitude and temperature specified for the altitude and the air temperature at the aerodrome at which the take-off is to be made.

(2) The take-off run, take-off distance and the emergency distance respectively required for take-off, specified as being appropriate to—

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

(*b*) the altitude at the aerodrome;

(*c*) the air temperature at the aerodrome;

(*d*) the slope 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; and

(*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, the take-off distance and the emergency distance available, respectively, at the aerodrome at which the take-off is to be made; in ascertaining the emergency distance required, the point at which the pilot is assumed to decide to discontinue the take-off shall not be nearer to the start of the take-off run than the point at which, in ascertaining the take-off run required and the take-off distance required, he is assumed to decide to continue the take-off, in the event of power unit failure.

(3) (*a*) The net take-off flight path with one power unit inoperative, specified as being appropriate to—

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

(ii) the altitude at the aerodrome;

(iii) the air temperature at the aerodrome; and

(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 35 feet or 50 feet, as appropriate, above the end of the take-off distance required at the aerodrome at which the take-off is to be made to a height of 1,500 feet above the aerodrome, shows that the aeroplane will clear any obstacle in its path by a vertical interval of at least 35 feet, except that if it is intended that the aeroplane shall change its direction of flight by more than 15° the vertical interval shall not be less than 50 feet during the change of direction.

(*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 one eighth 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.

(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 and with the other power units or unit operating within the maximum continuous power conditions specified, be capable of continuing the flight, clearing by a vertical interval of at least 2,000 feet obstacles within 5 nautical miles either side of the intended track, to an aerodrome at which it can comply with condition (7) in this Regulation relating to an alternate aerodrome, and on arrival over such aerodrome the gradient of the specified net flight path with one power unit inoperative shall not be less than zero at 1,500 feet above the aerodrome; and in assessing the ability of the aeroplane to satisfy this condition it shall not be assumed to be capable of flying at an altitude exceeding the specified maximum permissible altitude for power unit restarting.

(5) The aeroplane will, in the meteorological conditions expected for the flight, 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 in still air at the all power units operating economical cruising speed from the nearest aerodrome at which it can comply with condition (7) in this Regulation, relating to an alternate aerodrome, be capable of continuing the flight with all other power units operating within the specified maximum continuous power conditions, clearing by a vertical interval of at least 2,000 feet obstacles within 5 nautical miles either side of the intended track to such an aero-

drome, and on arrival over such aerodrome the gradient of the specified net flight path with two power units inoperative shall not be less than zero at 1,500 feet above the aerodrome; and in assessing the ability of the aeroplane to satisfy this condition it shall not be assumed to be capable of flying at an altitude exceeding the specified maximum permissible altitude for power unit restarting.

(6) The landing weight of the aeroplane will not exceed the maximum landing weight specified for the altitude and the expected air temperature for the estimated time of landing at the aerodrome at which it is intended to land and at any alternate aerodrome.

(7) (*a*) The landing distances required, respectively specified as being appropriate to aerodromes of destination and alternate aerodromes, do not exceed at the aerodrome at which it is intended to land or at any alternate aerodrome, as the case may be, the landing distance available on:—

(i) the most suitable runway for a landing in still air conditions; and

(ii) the runway that may be required for landing because of the forecast wind conditions:

Provided that if an alternate aerodrome is designated in the flight plan, the specified landing distance required may be that appropriate to an alternate aerodrome when assessing the ability of the aeroplane to satisfy this condition at the aerodrome of destination in respect of the runway that may be required for landing because of the forecast wind conditions.

(*b*) For the purposes of sub-paragraph (*a*) hereof the landing distance required shall be that specified as being appropriate to:—

(i) the landing weight;

(ii) the altitude at the aerodrome;

(iii) the temperature in the specified international standard atmosphere appropriate to the altitude at the aerodrome;

(iv) (*aa*) a level surface in the case of runways usable in both directions;

(*bb*) the average slope of the runway in the case of runways usable in only one direction; and

(v) (*aa*) still air conditions in the case of the most suitable runway for a landing in still air conditions;

(*bb*) not more than 50 per cent of the forecast wind component opposite to the direction of landing or not less than 150 per cent of the forecast wind component in the direction of landing in the case of the runway that may be required for landing because of the forecast wind conditions.

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

8.—(1) With reference to Article 24 (1) of the Order an aeroplane registered in the United Kingdom in respect of which there is in force under the Order a certificate of airworthiness in which the aeroplane is designated as being of performance group C or of performance group D shall not fly for the purpose of public transport, except for the sole purpose of training persons to perform duties in aircraft, unless the weight of the aeroplane at the commencement of the take-off run is such that the following conditions are satisfied:—

(*a*) That weight does not exceed the maximum take-off weight specified for the altitude and the air temperature at the aerodrome at which the take-off is to be made.

(*b*) The take-off run required and the take-off distance required, specified as being appropriate to—

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

(ii) the altitude at the aerodrome ;

(iii) the air temperature at the aerodrome ;

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

(v) 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.

(*c*) The net take-off flight path with all power units operating, specified as being appropriate to—

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

(ii) the altitude at the aerodrome ;

(iii) the air temperature at the aerodrome ;

(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 relating to the aircraft, 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. 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 specified radius of steady turn.

(*d*) The aeroplane will, if it is designated 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) in Regulation 7.

(*e*) 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 specified maximum continuous power conditions:—

(i) in the case of an aeroplane designated 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 1,500 feet above an aerodrome at which a safe landing can be made and after arrival at that point be capable of maintaining that height;

(ii) in the case of an aeroplane designated 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 specified as being appropriate to its estimated weight at that point.

(*f*) The landing weight of the aeroplane will not exceed the maximum landing weight specified for the altitude and the expected air temperature for the estimated time of landing at the aerodrome at which it is intended to land and at any alternate aerodrome.

(*g*) The distance required by the aeroplane to land from a height of 50 feet does not, at the aerodrome at which it is intended to land and at any alternate aerodrome, exceed 70 per cent of the landing distance available on the most suitable runway for a landing in still air conditions, or on the runway that may be required for landing because of the forecast wind conditions, and for the purposes of this sub-paragraph the distance required to land from a height of 50 feet shall be taken to be that specified as being appropriate to:—

(i) the landing weight;

(ii) the altitude at the aerodrome;

(iii) the expected air temperature for the estimated time of landing at the aerodrome;

(iv) (*aa*) a level surface in the case of runways usable in both directions;

(*bb*) the average slope of the runway in the case of runways usable in only one direction; and

(v) (*aa*) still air conditions in the case of the most suitable runway for a landing in still air conditions;

(*bb*) not more than 50 per cent of the forecast wind component opposite to the direction of landing or not less than 150 per cent of the forecast wind component in the direction of landing in the case of the runway that may be required for landing because of the forecast wind conditions.

(2) An aeroplane designated as aforesaid as an aeroplane of performance group D shall not fly for the purpose of public transport (except for the sole purpose of training persons to perform duties in aircraft) at night or when the cloud ceiling or visibility prevailing at the aerodrome of departure and forecast for the estimated time of landing at the aerodrome at which it is intended to land and at any alternate aerodrome are less than 1,000 feet and one mile respectively.

Weight and Performance of Public Transport Aeroplanes classified as Aeroplanes of Performance Group X in their Certificates of Airworthiness

9. With reference to Article 24 (1) of the Order an aeroplane in respect of which there is in force under the Order a certificate of airworthiness designating the aeroplane as being of performance group X shall not fly for the purpose of public transport, except for the sole purpose of training persons to perform duties in aircraft, unless the weight of the aeroplane at the commencement of the take-off run is such that the following conditions are satisfied:—

(1) (i) That weight does not exceed the maximum take-off weight specified for the altitude at the aerodrome at which the take-off is to be made, or for the altitude and the air temperature at such aerodrome, as the case may be.

(ii) The minimum effective take-off runway length required, specified as being appropriate to:—

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

(*b*) the altitude at the aerodrome;

(*c*) the air temperature at the time of take-off;

(*d*) the overall slope of the take-off run available; and

(*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,

does not exceed the take-off run available at the aerodrome at which the take-off is to be made.

(iii) (*a*) The take-off flight path with one power unit inoperative, specified as being appropriate to—

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

(ii) the altitude at the aerodrome; and

(iii) 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 minimum effective take-off runway length required at the aerodrome at which the take-off is to be made, shows that the aeroplane will thereafter clear any obstacle in its path by a vertical interval of not less than the greater of 50 feet or 35 feet plus one hundredth 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.

(*b*) For the purpose of sub-paragraph (*a*) 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 does not exceed:—

(i) a distance of 200 feet plus half the wing span of the aeroplane plus one eighth of the distance from such point to the end of the take-off distance available measured along the intended line of flight; or

(ii) 5,000 feet,

whichever is the less.

(*c*) In assessing the ability of the aeroplane to satisfy this condition, insofar as it relates to flight path, it shall not be assumed to make a change of direction of a radius less than the radius of steady turn corresponding to an angle of bank of 15°.

(2) (i) (*a*) Subject to sub-paragraph (*b*), the weight of the aeroplane at any point on the route or any planned diversion therefrom, having regard to the fuel and oil expected to be consumed up to that point, shall be such that the aeroplane, with one power unit inoperative and the other power unit or units operating within the maximum continuous power conditions specified, will be capable of a rate of climb of at least $K(Vso/100)^2$ feet per minute at an altitude not less than the minimum altitude for safe flight stated in or calculated from the information contained in the operations manual, where Vso is in knots and K has the value of 797—1060/N, N being the number of power units installed.

(*b*) As an alternative to (*a*), the aeroplane may be flown at an altitude from which, in the event of failure of one power unit, it is capable of reaching an aerodrome where a landing can be made in accordance with condition (3) (ii) in this Regulation relating to an alternate aerodrome. In that case, the weight of the aeroplane shall be such that, with the remaining power unit or units operating within the maximum continuous power conditions specified, it is capable of maintaining a minimum altitude on the route to such aerodrome of 2,000 feet above all obstacles within five nautical miles on either side of the intended track and

(*aa*) the rate of climb, specified for the appropriate weight and altitude, used in calculating the flight path shall be reduced by an amount equal to $K(Vso/100)^2$ feet per minute ;

(*bb*) the aeroplane shall comply with the climb requirements of condition 2 (i) (*a*) at 1,000 feet above the chosen aerodrome ;

(*cc*) account shall be taken of the effect of wind and temperature on the flight path ; and

(*dd*) the weight of the aeroplane may be assumed to be progressively reduced by normal consumption of fuel and oil.

(ii) An aeroplane having four power units shall, if any two power units become inoperative at any point along the route or any planned diversion therefrom, being a point more than 90 minutes flying time (assuming all power units to be operating) from the nearest aerodrome at which a landing can be made in compliance with condition (3) (ii) of this Regulation relating to an alternate aerodrome, be capable of continuing the flight at an altitude of not less than 1,000 feet above ground level to a point above that aerodrome. In assessing the ability of the aeroplane to satisfy this condition, it shall be assumed that the remaining power units will operate within the specified maximum continuous power conditions, and account shall be taken of the temperature and wind conditions expected for the flight.

(3) (i) The landing weight of the aeroplane will not exceed the maximum landing weight specified for the altitude at the aerodrome at which it is intended to land and at any alternate aerodrome.

(ii) The required landing runway lengths respectively specified as being appropriate to the aerodromes of intended destination and the alternate aerodromes do not exceed at the aerodrome at which it is intended

to land or at any alternate aerodrome, as the case may be, the landing distance available on :—

(*a*) the most suitable runway for a landing in still air conditions ; and

(*b*) the runway that may be required for landing because of the forecast wind conditions.

the required landing runway lengths being taken to be those specified as being appropriate to :—

(*a*) the landing weight ;

(*b*) the altitude at the aerodrome ;

(*c*) still air conditions in the case of the most suitable runway for a landing in still air conditions ; and

(*d*) not more than 50 per cent of the forecast wind component opposite to the direction of landing or not less than 150 per cent of the forecast wind component in the direction of landing in the case of the runway that may be required for landing because of the forecast wind conditions.

Noise and vibration caused by aircraft on aerodromes

10. With reference to Article 64 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 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.

Revocation

11.—(1) The following Regulations are hereby revoked, that is to say—

The Air Navigation (Radio) Regulations, 1954(**a**).

The Air Navigation (General) Regulations, 1954(**b**).

The Air Navigation (General) (Amendment) Regulations, 1956(**c**).

The Air Navigation (Minimum Height of Helicopters) Regulations, 1956(**d**).

The Air Navigation (Radio) (Amendment) Regulations, 1956(**e**).

The Air Navigation (General) (Second Amendment) Regulations, 1957(**f**).

(**a**) S.I. 1954/900 (1954 I, p. 442).
(**b**) S.I. 1954/925 (1954 I, p. 356).
(**c**) S.I. 1956/126 (1956 I, p. 466).
(**d**) S.I. 1956/1641 (1956 I, p. 469).
(**e**) S.I. 1956/1845 (1956 I, p. 470).
(**f**) S.I. 1957/627 (1957 I, p. 368).

The Air Navigation (Radio) (Second Amendment) Regulations, 1957(a).

The Air Navigation (Radio) (Third Amendment) Regulations, 1957(b).

The Air Navigation (General) (Third Amendment) Regulations, 1957(c).

The Air Navigation (General) (Fourth Amendment) Regulations, 1959(d).

The Air Navigation (General) (Fifth Amendment) Regulations, 1960(e).

(2) Subsection (2) of Section thirty-eight of the Interpretation Act, 1889, (which relates to the effect of repeals) shall apply to these Regulations as if they were an Act of Parliament and as if the Regulations revoked by paragraph (1) of this Regulation were Acts of Parliament thereby repealed.

Dated this 23rd day of June, 1960.

R. R. Goodison,
An Under Secretary of the
Ministry of Aviation.

SCHEDULE

Regulation 6

WEIGHT AND PERFORMANCE OF PUBLIC TRANSPORT AEROPLANES HAVING NO PERFORMANCE GROUP CLASSIFICATION IN THEIR CERTIFICATES OF AIRWORTHINESS.

Conditions (1) and (2) apply to all aeroplanes to which Regulation 6 applies;

Conditions (3) to (9) apply to all aeroplanes to which Regulation 6 applies—

(i) of which the specified maximum total weight authorised exceeds 12,500 lb., or

(ii) of which the specified maximum total weight authorised does not exceed 12,500 lb. and which comply with neither condition (1) (*a*) nor condition (1) (*b*);

Conditions (10) to (17) inclusive apply to all aeroplanes to which Regulation 6 applies, of which the specified maximum total weight authorised does not exceed 12,500 lb., and which comply with condition (1) (*a*) or condition (1) (*b*) or with both those conditions.

All aeroplanes

(1) 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 power units inoperative and the remaining power unit or units operating within the maximum continuous power conditions specified, is capable of a gradient of climb of at least 1 in 200 at an altitude of 5,000 feet in the specified international standard atmosphere.

(2) The weight of the aeroplane at the commencement of the take-off run does not exceed the maximum take-off weight, if any, specified for the altitude and the air temperature at the aerodrome at which the take-off is to be made.

Aeroplanes of a specified maximum total weight authorised exceeding 12,500 *lb. and aeroplanes of a specified maximum total weight authorised not exceeding* 12,500 *lb. which comply with neither condition* (1) (*a*) *nor condition* (1) (*b*).

(3) (*a*) The distance required by the aeroplane to attain a height of 50 feet, with all power units operating within the maximum take-off power conditions

(a) S.I. 1957/1400 (1957 I, p. 378).
(b) S.I. 1957/1976 (1957 I, p. 379).
(c) S.I. 1957/2249 (1957 I, p. 375).
(d) S.I. 1959/731 (1959 I, p. 660).
(e) S.I. 1960/669.

specified, does not exceed the take-off run available at the aerodrome at which the take-off is to be made.

(*b*) The distance required by the aeroplane to attain a height of 50 feet with all power units operating within the maximum take-off power conditions specified, when multiplied by a factor of either 1·33 for aeroplanes having two power units or by a factor of 1·18 for aeroplanes having four power units, does not exceed the emergency distance available at the aerodrome at which the take-off is to be made.

(*c*) For the purposes of sub-paragraphs (*a*) and (*b*) the distance required by the aeroplane to attain a height of 50 feet shall be that appropriate to:—

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

(ii) the altitude at the aerodrome;

(iii) the air temperature at the aerodrome;

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

(v) 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.

(4) (*a*) The take-off flight path with one power unit inoperative and the remaining power unit or units operating within the maximum take-off power conditions specified, appropriate to:—

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

(ii) the altitude at the aerodrome;

(iii) the air temperature at the aerodrome;

(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 appropriate factored distance required for take-off under condition (3) (*b*) of this Regulation at the aerodrome at which the take-off is to be made, shows that the aeroplane will clear any obstacle in its path by a vertical interval of at least 35 feet except that if it is intended that an aeroplane shall change its direction by more than 15° the vertical interval shall be not less than 50 feet during the change of direction.

(*b*) For the purpose of sub-paragraph (4) (*a*) 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 does not exceed:—

(i) a distance of 200 feet plus half the wing span of the aeroplane plus one-eighth of the distance from such point to the end of the take-off distance available, measured along the intended line of flight; 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 a radius of steady turn corresponding to an angle of bank of 15°.

(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 unit operating within the maximum continuous power conditions specified, be capable of continuing the flight clearing obstacles within 10 nautical miles either side of the intended track by a vertical interval of at least:—

(*a*) 1,000 feet when the gradient of the flight path is not less than zero; or

(*b*) 2,000 feet when the gradient of the flight path is less than zero,

to an aerodrome at which it can comply with condition (9), and on arrival over such aerodrome the flight path shall have a positive gradient of not less than 1 in 200 at 1,500 feet above the aerodrome.

(6) 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 power units operating within the maximum continuous power conditions specified, 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 specified in, or calculated from the information contained in, the operations manual relating to the aeroplane; and

(*b*) the minimum altitudes necessary for compliance with conditions (5) and (7), as appropriate.

(7) If on the route to be flown or any planned diversion therefrom, the aeroplane will be engaged in a flight over water during which at any point it may be more than 90 minutes flying time in still air from the nearest shore, it will in the event of two power units becoming inoperative during such time and with the other power units or unit operating within the maximum continuous power conditions specified be capable of continuing the flight having regard to the meteorological conditions expected for the flight, clearing all obstacles within 10 nautical miles either side of the intended track by a vertical interval of at least 1,000 feet, to an aerodrome at which a safe landing can be made.

(8) The landing weight of the aeroplane will not exceed the maximum landing weight, if any, specified for the altitude and the expected air temperature for the estimated time of landing at the aerodrome at which it is intended to land and at any alternate aerodrome.

(9) The distance required by the aeroplane to land from a height of 50 feet does not, at the aerodrome at which it is intended to land and at any alternate aerodrome, exceed 70 per cent of the landing distance available on:—

(i) the most suitable runway for a landing in still air conditions; and

(ii) the runway that may be required for landing because of the forecast wind conditions,

the distance required to land from a height of 50 feet being taken to be that appropriate to:—

(*a*) the landing weight;

(*b*) the altitude at the aerodrome;

(*c*) the temperature in the specified international standard atmosphere appropriate to the altitude at the aerodrome;

(*d*) (i) a level surface in the case of runways usable in both directions;

(ii) the average slope of the runway in the case of runways usable in only one direction; and

(*e*) (i) still air conditions in the case of the most suitable runway for a landing in still air conditions;

(ii) not more than 50 per cent of the forecast wind component opposite to the direction of landing or not less than 150 per cent of the forecast wind component in the direction of landing in the case of the runway that may be required for landing because of the forecast wind conditions.

Aeroplanes of a specified maximum total weight authorised not exceeding 12,500 *lb. and which comply with either condition* (1) (*a*) *or condition* (1) (*b*), *or with both those conditions*

(10) If the aeroplane is engaged in a flight at night or when the cloud ceiling or visibility prevailing at the aerodrome of departure and forecast for the estimated time of landing at the aerodrome of destination or at any alternate

aerodrome, are less than 1,000 feet and 1 mile respectively, it will, with any one of its power units inoperative and the remaining power unit or units operating within the maximum continuous power conditions specified, be capable of climbing at a gradient of at least 1 in 200 at an altitude of 2,500 feet in the specified international standard atmosphere.

(11) (*a*) The distance required by the aeroplane to attain a height of 50 feet with all power units operating within the maximum take-off power conditions specified, does not exceed the take-off run available at the aerodrome at which the take-off is to be made.

(*b*) The distance required by the aeroplane to attain a height of 50 feet, with all power units operating within the maximum take-off power conditions specified, when multiplied by a factor of 1·33 does not exceed the emergency distance available at the aerodrome at which the take-off is to be made.

(*c*) For the purposes of sub-paragraphs (*a*) and (*b*) the distance required by the aeroplane to attain a height of 50 feet shall be that appropriate to:—

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

(ii) the altitude at the aerodrome;

(iii) the temperature in the specified international standard atmosphere appropriate to the altitude at the aerodrome, or if greater, the air temperature at the aerodrome less 15° centigrade;

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

(v) 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.

(12) The take-off flight path, with all power units operating within the maximum take-off power conditions specified, appropriate to:—

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

(ii) the altitude at the aerodrome;

(iii) the temperature in the specified international standard atmosphere appropriate to the altitude at the aerodrome, or, if greater, the air temperature at the aerodrome less 15° centigrade; and

(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 factored distance required for take-off under condition (11) (*b*), at the aerodrome at which the take-off is to be made, shows that the aeroplane will clear any obstacle lying within 200 feet plus half the wing span of the aeroplane on either side of its path by a vertical interval of at least 35 feet. 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 a radius of steady turn corresponding to an angle of bank of 15°.

(13) 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 unit or units, if any, operating within the maximum continuous power conditions specified, be capable of continuing the flight so as to reach a point above a place at which a safe landing can be made at a suitable height for such landing.

(14) The aeroplane will, in the meteorological conditions expected for the flight, at any point on its route or any planned diversion therefrom, be capable of climbing at a gradient of at least 1 in 50, with all power units operating within the maximum continuous power conditions specified, at the following altitudes:—

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

(*b*) the minimum altitudes necessary for compliance with condition (13).

(15) If on the route to be flown or any planned diversion therefrom the aeroplane will be engaged in a flight over water during which at any point it may be more than 30 minutes flying time in still air from the nearest shore, it will, in the event of one power unit becoming inoperative during such time and with the other power unit or units operating within the maximum continuous power conditions specified, be capable of climbing at a gradient of at least 1 in 200 at an altitude of 5,000 feet in the specified international standard atmosphere.

(16) The landing weight of the aeroplane will not exceed the maximum landing weight, if any, specified for the altitude and the expected air temperature for the estimated time of landing at the aerodrome at which it is intended to land and at any alternate aerodrome.

(17) The distance required by the aeroplane to land from a height of 50 feet does not, at the aerodrome at which it is intended to land and at any alternate aerodrome, exceed 70 per cent, or, if a visual approach and landing will be possible in the meteorological conditions forecast for the estimated time of landing, 80 per cent, of the landing distance available on:—

(i) the most suitable runway for a landing in still air conditions; and

(ii) the runway that may be required for landing because of the forecast wind conditions,

the distance required to land from a height of 50 feet being taken to be that appropriate to:—

(*a*) the landing weight;

(*b*) the altitude at the aerodrome;

(*c*) the temperature in the specified international standard atmosphere appropriate to the altitude at the aerodrome;

(*d*) (i) a level surface in the case of runways usable in both directions;

(ii) the average slope of the runway in the case of runways usable in only one direction; and

(*e*) (i) still air conditions in the case of the most suitable runway for a landing in still air conditions;

(ii) not more than 50 per cent of the forecast wind component opposite to the direction of landing or not less than 150 per cent of the forecast wind component in the direction of landing in the case of the runway that may be required for landing because of the forecast wind conditions.

EXPLANATORY NOTE

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

These Regulations revoke the Regulations made under the Air Navigation Order, 1954 (S.I. 1954/829), as amended. Regulations 3 (Load Sheets), 5 to 9 (Weight and Performance) and 10 (Noise and Vibration on Aerodromes) replace respectively, with modifications, Regulations 43, 33 to 39 and 230 of the Air Navigation (General) Regulations, 1954, as amended, and Regulation 4 (Minimum weather conditions) replaces, with modifications, Article 20 of the Air Navigation Order, 1954. Certain of the provisions of the revoked Regulations have been incorporated in the Air Navigation Order, 1960 (S.I. 1960/972).