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GOVERNMENT OF INDIA
OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION
TECHNICAL CENTRE, OPP SAFDURJUNG AIRPORT, NEW DELHI

CIVIL AVIATION REQUIREMENTS
SECTION 2 - AIRWORTHINESS
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Subject: Operation of General Aviation Aeroplanes.

1. INTRODUCTION

- 1.1 This part of the CAR lays down the minimum operational, equipment and instrument requirements for aeroplanes registered in India and engaged in General Aviation operations.

This CAR has been issued under the provision of Rule 29C of the Aircraft Rules 1937 and is in conformity with ICAO Annex 6 Part II.

- 1.2 **Applicability** These requirements are applicable for aeroplanes engaged in General Aviation and the aeroplanes certified in private category or passenger category for State Government and when such aeroplanes are not engaged in commercial air transport operations .

2. DEFINITIONS

Aerial work. An aircraft operation in which an aircraft is used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc but does not include an aircraft used for public transport .

Aerodrome. A defined area on land or water, including any buildings, installations and equipment, intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.

Aerodrome Operating Minima. The limits of usability of an aerodrome for :

- a) take-off, expressed in terms of runway visual range and/or visibility and, if necessary, cloud conditions;
- b) landing in precision approach and landing operations, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H) as appropriate to the category of operation;
- c) landing in approach and landing operations with vertical guidance, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H); and
- d) landing in non-precision approach and landing operations, expressed in terms of visibility and/or runway visual range, minimum descent altitude/height (MDA/H) and, if necessary, cloud conditions.

Aeroplane. A power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.

Aircraft. Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

Alternate aerodrome. An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing. Alternate aerodromes include the following:

Take-off alternate. An alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.

En-route alternate. An aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while en-route.

Destination alternate. An alternate aerodrome to which an aircraft may proceed should it become either impossible or inadvisable to land at the aerodrome of intended landing.

Note: *The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for that flight.*

Altimetry system error (ASE). The difference between the altitude indicated by the altimeter display, assuming a correct altimeter barometric setting, and the pressure altitude corresponding to the undisturbed ambient pressure.

Approach and landing operations using instrument approach procedures. Instrument approach and landing operations are classified as follows:

Non-precision approach and landing operations. An instrument approach and landing which utilizes lateral guidance but does not utilize vertical guidance.

Approach and landing operations with vertical guidance. An instrument approach and landing which utilizes lateral and vertical guidance but does not meet the requirements established for precision approach and landing operations.

Precision approach and landing operations. An instrument approach and landing using precision lateral and vertical guidance with minima as determined by the category of operation.

Note.— Lateral and vertical guidance refers to the guidance provided either by:

- a) a ground-based navigation aid; or*
- b) computer generated navigation data*

Categories of precision approach and landing operations:

Category I (CAT I) operation. A precision instrument approach and landing with a decision height not lower than 200 ft (60 m) and with either a visibility not less than 800 m or a runway visual range not less than 550 m.

Category II (CAT II) operation. A precision instrument approach and landing with a decision height lower than 200 ft (60 m), but not lower than 100 ft (30 m), and a runway visual range not less than 350 m.

Category IIIA (CAT IIIA) operation. A precision instrument approach and landing with:

- a) a decision height lower than 100 ft (30 m) or no decision height; and
- b) a runway visual range not less than 200 m.

Category IIIB (CAT IIIB) operation. A precision instrument approach and landing with:

- a) a decision height lower than 50 ft (15 m) or no decision height; and
- b) a runway visual range less than 200 m but not less than 50 m.

Category IIIC (CAT IIIC) operation. A precision instrument approach and landing with no decision height and no runway visual range limitations.

Note.— Where decision height (DH) and runway visual range (RVR) fall into different categories of operation, the instrument approach and landing operation would be conducted in accordance with the requirements of the most demanding category (e.g. an operation with a DH in the range of CAT IIIA but with an RVR in the range of CAT IIIB would be considered a CAT IIIB operation or an operation with a DH in the range of CAT II but with an RVR in the range of CAT I would be considered a CAT II operation).

Commercial air transport operation. An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.

Dangerous goods. articles or substances which are capable of posing a risk to health, safety, property or the environment and which are listed as such in the Technical Instructions or which are classified according to the Technical Instructions, and also includes arms, military stores, implements of war and munitions of war.

Note.— Dangerous goods are classified in accordance with Aircraft (Carriage of Dangerous Goods) Rules, 2003.

Decision altitude (DA) or decision height (DH). A specified altitude or height in the precision approach or approach with vertical guidance at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

Note 1.— Decision altitude (DA) is referenced to mean sea level and decision height (DH) is referenced to the threshold elevation.

Note 2.— The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path. In Category III operations with a decision height the required visual reference is that specified for the particular procedure and operation.

Note 3.— For convenience where both expressions are used they may be written in the form “decision altitude/height” and abbreviated “DA/H”.

Emergency locator transmitter (ELT). A generic term describing equipment which broadcast distinctive signals on designated frequencies and, depending on application, may be automatically activated by impact or be manually activated. An ELT may be any of the following:

Automatic fixed ELT (ELT(AF)). An automatically activated ELT which is permanently attached to an aircraft.

Automatic portable ELT (ELT(AP)). An automatically activated ELT which is rigidly attached to an aircraft but readily removable from the aircraft.

Automatic deployable ELT (ELT(AD)). An ELT which is rigidly attached to an aircraft and which is automatically deployed and activated by impact, and, in some cases, also by hydrostatic sensors. Manual deployment is also provided.

Survival ELT (ELT(S)). An ELT which is removable from an aircraft, stowed so as to facilitate its ready use in an emergency, and manually activated by survivors.

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

Flight manual. A manual, associated with the certificate of airworthiness, containing limitations within which the aircraft is to be considered airworthy, and instructions and information necessary to the flight crew members for the safe operation of the aircraft.

Flight plan. Specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft.

Flight Recorder. Any type of recorder installed in the aircraft for the purpose of complimenting accident/incident investigation.

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

Note - Flight time as here defined is synonymous with the term "block to block" time or "chock to chock" time in general usage which is measured from the time an aeroplane first moves for the purpose of taking off until it finally stops at the end of the flight.

General aviation operation. An aircraft operation other than a commercial air transport operation or an aerial work operation.

Instrument meteorological conditions (IMC). Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less than the minima specified for visual meteorological conditions.

Note:-specified minima for visual Meteorological conditions are contained in CAR, Section -4, Series 'E' part -I

Maintenance. The performance of tasks required to ensure the continuing airworthiness of an aircraft, including any one or combination of overhaul, inspection, replacement, defect rectification, and the embodiment of a modification or repair.

Maintenance programme. A document which describes the specific scheduled maintenance tasks and their frequency of completion and related procedures, such as a reliability programme, necessary for the safe operation of those aircraft to which it applies.

Maintenance release. A document which contains a certification confirming that the maintenance work to which it relates has been completed in a satisfactory manner, either in accordance with the approved data and the procedures described in the maintenance organization's procedures manual or under an equivalent system.

Meteorological information. Meteorological report, analysis, forecast, and any other statement relating to existing or expected meteorological conditions.

Minimum descent altitude/height (MDA/H). A specified altitude or height in a non-precision approach or circling approach below which descent must not be made without the required visual reference.

Note 1.— Minimum descent altitude (MDA) is referenced to mean sea level and minimum descent height (MDH) is referenced to the aerodrome elevation or to the threshold elevation if that is more than 7 ft(2 m) below the aerodrome elevation. A minimum descent height for a circling approach is referenced to the aerodrome elevation.

Note 2.— The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path. In the case of a circling approach the required visual reference is the runway environment.

Note 3:- For convenience when both expressions are used they may be written in the form “minimum descent altitude/height” and abbreviated “MDA/H”.

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

Obstacle clearance altitude (OCA) or obstacle clearance height (OCH). The lowest altitude or lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable, used in establishing compliance with appropriate obstacle clearance criteria.

Note 1.-Obstacle clearance altitude is referenced to mean sea level and obstacle clearance height is referenced to the threshold elevation or in the case of non- precision approaches to the aerodrome elevation or the threshold elevation if that is more than 7 feet (2 meter) below the aerodrome elevation. An obstacle clearance height for a circling approach is referenced to the aerodrome elevation.

Note 2- For convenience when both expressions are used they may be written in the form “obstacle clearance altitude/height” and abbreviated “OCA/H”.

Pilot-in-command. The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight in-command

Psychoactive substances. Alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psycho stimulants, hallucinogens, and volatile solvents, whereas coffee and tobacco are excluded.

Repair. The restoration of an aeronautical product to an airworthy condition to ensure that the aircraft continues to comply with the design aspects of the appropriate airworthiness requirements used for the issuance of the type certificate for the respective aircraft type, after it has been damaged or subjected to wear.

Required navigation performance (RNP). A statement of the navigation performance necessary for operation within a defined airspace.

Note.— *Navigation performance and requirements are defined for a particular RNP type and/or application.*

RNP type. A containment value expressed as a distance in nautical miles from the intended position within which flights would be for at least 95 per cent of the total flying time.

Example.—RNP 4 represents a navigation accuracy of plus or minus 7.4 km (4 NM) on a 95 per cent containment basis.

Runway visual range (RVR). The range over which the pilot of an aircraft on the center line of runway can see the runway surface markings or the lights delineating the runway or identifying its center line.

State of Registry. The State on whose register the aircraft is entered.

Note.— *In the case of the registration of aircraft of an international operating agency on other than a national basis, the States constituting the agency are jointly and severally bound to assume the obligations which, under the Chicago Convention, attach to a State of Registry. See, in this regard, the Council Resolution of 14 December 1967 on Nationality and Registration of Aircraft Operated by International Operating Agencies which can be found in Policy and Guidance Material on the Economic Regulation of International Air Transport (Doc 9587).*

Target level of safety (TLS). A generic term representing the level of risk which is considered acceptable in particular circumstances.

Total vertical error (TVE). The vertical geometric difference between the actual pressure altitude flown by an aircraft and its assigned pressure altitude (flight level).

Visual meteorological conditions (VMC). Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, equal to or better than specified minima.

Note.— *The specified minima are contained in CAR, Section 4, Series 'E' Part I.*

3 GENERAL REQUIREMENTS

- 3.1 The pilot-in-command shall comply with the relevant laws, regulations and procedures of those States in which the aeroplane is operated.
- 3.2 The pilot-in-command shall be responsible for the safety of all crew members, passengers and cargo on board when the doors are closed. The pilot-in-command shall also be responsible for the operation and safety of the aeroplane from the moment the aeroplane is ready to move for the purpose of taking off until the moment it finally comes to rest at the end of the flight and the engine(s) used as primary propulsion units are shut down.
- 3.3 If an emergency situation which endangers the safety of the aeroplane or persons necessitates the taking of action which involves a violation of regulations or procedures, the pilot-in-command / operator shall notify the nearest Air Safety office of DGCA without delay. In the event such emergency situation occurs outside India, the pilot-in-command shall notify the appropriate local authority without delay and if required by the State in which the incident occurs, the pilot-in-command shall also submit a report of the occurrence on any such violation to the appropriate authority of such State. The pilot-in-command shall submit a copy of the occurrence to the DGCA marked attention of Director of Air Safety (Hqrs.) with a copy endorsed to the Regional Air Safety Office where the aeroplane is normally based. Such reports shall be submitted within 48 hours.
- 3.4 The pilot-in-command shall be responsible for notifying the nearest appropriate authority by the quickest available means of any accident involving the aeroplane resulting in serious injury or death of any person or substantial damage to the aeroplane or property.

Note.— A definition of the term “serious injury” is contained in Annex 13, and an explanation of the term “substantial damage” is given in the Accident/Incident Reporting Manual (ADREP Manual) (Doc 9156)

- 3.5 The pilot-in-command should have available on board the aeroplane all the essential information concerning the search and rescue services in the area over which the aeroplane will be flown.
- 3.6 Dangerous goods. The pilot-in-command shall adhere to the provisions for carriage of dangerous goods as contained in Aircraft (Carriage of Dangerous Goods) Rules, 2003.
- 3.7 Use of psychoactive substance. The pilot-in-command shall adhere to the provisions concerning the use of psychoactive substances as contained in Rule 24 of Aircraft Rules and CAR, Section 4, Series 'E' Part I.

4. FLIGHT PREPARATION AND IN-FLIGHT PROCEDURES

4.1 Adequacy of operating facilities

The pilot-in command shall not commence a flight unless it has been ascertained by every reasonable means available that the ground and/or water areas and facilities available and directly required for such flight and for the safe operation of the aeroplane are adequate, including communication facilities and navigation aids.

Note - "Reasonable means" in the aforesaid para is intended to denote the use, at the point of departure, of information available to the pilot-in-command either through official information published by the aeronautical information services or readily obtainable from other sources.

4.2 Aerodrome Operating Minima

The pilot-in-command shall not operate to or from an aerodrome using operating minima lower than those which may be established for that aerodrome by the state in which it is located, except with the specific approval of that state. In India, the aerodrome operating minima is established by DGCA.

4.3 Briefing

4.3.1 The pilot-in-command shall ensure that crew members and passengers are made familiar, by means of an oral briefing or by other means, with the location and the use of :

- (a) seat belts; and, as appropriate,
- (b) emergency exits;
- (c) life jackets;
- (d) oxygen dispensing equipment; and
- (e) other emergency equipment provided for individual use, including passenger emergency briefing cards.

4.3.2 The pilot-in-command shall ensure that all persons on board are aware of the location and general manner of use of the principal emergency equipment carried for collective use.

4.4 Aeroplane airworthiness and safety precautions

4.4.1 A flight shall not be commenced until the pilot-in-command is satisfied that:

- a) the aeroplane is airworthy, duly registered and that appropriate certificates with respect thereto are aboard the aeroplane;

- b) the instruments and equipment installed in the aeroplane are appropriate, taking into account the expected flight conditions;
- c) any necessary maintenance has been performed in accordance with Para 8 of this CAR;
- d) the mass of the aeroplane and centre of gravity location are such that the flight can be conducted safely, taking into account the flight conditions expected;
- e) any load carried is properly distributed and safely secured; and
- f) the aeroplane operating limitations, contained in the flight manual, or its equivalent, will not be exceeded.

4.4.2 The pilot in command shall have sufficient information on climb performance with all engines operating to enable determination of the climb gradient that can be achieved during the departure phase for the existing take off conditions and intended take off technique.

4.5 Weather reports and forecasts

Before commencing a flight, the pilot-in-command shall be familiar with all available meteorological information appropriate to the intended flight. Preparation for a flight away from the vicinity of the place of departure, and for every flight under the instrument flight rules, shall include: 1) a study of available current weather reports and forecasts; and 2) the planning of an alternative course of action to provide for the eventuality that the flight cannot be completed as planned, because of weather conditions.

4.6 Limitations imposed by weather conditions

4.6.1 Flight in accordance with the visual flight rules

A flight, except one of purely local character in visual meteorological conditions, to be conducted in accordance with the visual flight rules shall not be commenced unless available current meteorological reports, or a combination of current reports and forecasts, indicate that the meteorological conditions along the route, or that part of the route to be flown under the visual flight rules, will, at the appropriate time, be such as to render compliance with these rules possible.

4.6.2 Flight in accordance with the instrument flight rules

4.6.2.1 *When a destination alternate aerodrome is required.* A flight to be conducted in accordance with the instrument flight rules shall not be commenced unless the available information indicates that conditions, at the aerodrome of intended landing and at least one destination alternate will, at the estimated time of arrival, be at or above the aerodrome operating minima.

4.6.2.2 *When no destination alternate aerodrome is required.* A flight to be conducted in accordance with the instrument flight rules to an aerodrome when no alternate aerodrome is required shall not be commenced unless:

- a) a standard instrument approach procedure is prescribed for the aerodrome of intended landing; and
- b) available current meteorological information indicates, that the following meteorological conditions will exist from two hours before to two hours after the estimated time of arrival:
 - 1) a cloud base of at least 1000 ft (300 m) above the minimum associated with the instrument approach procedure; and
 - 2) visibility of at least 5.5 km or of 4 km more than the minimum associated with the procedure.

4.6.3 Aerodrome operating minima

4.6.3.1 A flight shall not be continued towards the aerodrome of intended landing unless the latest available meteorological information indicates that conditions at that aerodrome, or at least one destination alternate aerodrome, will, at the estimated time of arrival, be at or above the specified aerodrome operating minima.

4.6.3.2 An instrument approach shall not be continued beyond the outer marker fix in case of precision approach, or below 1000 ft (300 m) above the aerodrome in case of non precision approach, unless the reported visibility or controlling RVR is above the specified minimum.

4.6.3.3 If after passing the outer marker fix in case of precision approach, or after descending below 1000 ft (300 m) above the aerodrome in case of non-precision approach, the reported visibility or controlling RVR falls below the specified minimum, the approach may be continued to DA/H or MDA/H. In any case, an aeroplane shall not continue its approach-to-land beyond a point at which the limits of the aerodrome operating minima would be infringed.

Note.— Controlling RVR means the reported values of one or more RVR reporting locations (touchdown, mid-point and stop-end) used to determine whether operating minima are or are not met. Where RVR is used, the controlling RVR is the touchdown RVR, unless otherwise specified by DGCA.

4.6.4 Flight in icing conditions

A flight to be operated in known or expected icing conditions shall not be commenced unless the aeroplane is certificated and equipped to cope with such conditions.

4.7 Destination alternate aerodromes

For a flight to be conducted in accordance with the instrument flight rules, at least one destination alternate aerodrome shall be selected and specified in the flight plan, unless:

- a) the duration of the flight and the meteorological conditions prevailing are such that there is reasonable certainty that, at the estimated time of arrival at the aerodrome of intended landing, and for a reasonable period before and after such time, the approach and landing may be made under visual meteorological conditions; or
- b) the aerodrome of intended landing is isolated and there is no suitable destination alternate aerodrome.

4.8 Fuel and oil supply

4.8.1 A flight shall not be commenced unless, taking into account both the meteorological conditions and any delays that are expected in flight, the aeroplane carries sufficient fuel and oil to ensure that it can safely complete the flight, and, as applicable, the following special provisions are complied with:

4.8.1.1 *Flight in accordance with the instrument flight rules.* At least sufficient fuel and oil shall be carried to allow the aeroplane:

- a) when, in accordance with the exception contained in 4.6.2.2, a destination alternate aerodrome is not required, to fly to the aerodrome to which the flight is planned and thereafter for a period of 45 minutes; or
- b) when a destination alternate aerodrome is required, to fly to the aerodrome to which the flight is planned, thence to an alternate aerodrome, and thereafter for a period of 45 minutes.

Note.- Nothing in 4.8 precludes amendment of a flight plan in flight in order to re-plan the flight to another aerodrome, provided that the requirements of 4.8 can be complied with from the point where the flight is re-planned.

4.9 Oxygen supply

The pilot-in-command shall ensure that breathing oxygen is available to crew members and passengers in sufficient quantities for all flights at such altitudes where a lack of oxygen might result in impairment of the faculties of crew members or harmfully affect passengers.

Note.— Guidance on the carriage and use of oxygen is given in Appendix -I .

4.10 Use of oxygen

All flight crew members, when engaged in performing duties essential to the safe operation of an aeroplane in flight, shall use breathing oxygen continuously whenever the circumstances prevail for which its supply has been required in 4.9.

4.11 In-flight emergency instruction

In an emergency during flight, the, pilot-in-command shall ensure that all persons on board are instructed in such emergency action as may be appropriate to the circumstances.

4.12 Weather reporting by pilots:

When weather conditions likely to affect the safety of other aircraft are encountered, they should be reported as soon as possible.

4.13 Hazardous flight conditions

Hazardous flight conditions, other than those associated with meteorological conditions, encountered en route should be reported as soon as possible. The reports so rendered should give such details as may be pertinent to the safety of other aircraft.

4.14 Fitness of flight crew members

The pilot-in-command shall be responsible for ensuring that a flight:

- a) will not be commenced if any flight crew member is incapacitated from performing duties by any cause such as injury, sickness, fatigue, the effects of alcohol or drugs; and
- b) will not be continued beyond the nearest suitable aerodrome when flight crew members' capacity to perform functions is significantly reduced by impairment of faculties from causes such as fatigue, sickness, lack of oxygen.

4.15 Flight crew members at duty stations

4.15.1 Take-off and landing

All flight crew members required to be on flight deck duty shall be at their stations.

4.15.2 En route

All flight crew members required to be on flight deck duty shall remain at their stations except when their absence is necessary for the performance of duties in connection with the operation of the aeroplane, or for physiological needs.

4.15.3 Seat belts

All flight crew members shall keep their seat belts fastened when at their stations.

4.15.4 Safety harness

When safety harnesses are provided, any flight crew member occupying a pilot's seat should keep the safety harness fastened during the take-off and landing phases; all other flight crew members should keep their safety harnesses fastened during the take-off and landing phases unless the shoulder straps interfere with the performance of their duties, in which case the shoulder straps may be unfastened but the seat belt must remain fastened.

Note.- Safety harness includes shoulder strap(s) and a seat belt which may be used independently.

4.16 Instrument flight procedures

4.16.1 One or more instrument approach procedures designed in accordance with the classification of instrument approach and landing operations shall be approved and promulgated by the DGCA for each aerodrome to serve each instrument runway or aerodrome utilized for instrument flight operations.

4.16.2 All aeroplanes operated in accordance with instrument flight rules shall comply with the instrument flight procedures approved by the State in which the aerodrome is located.

4.17 Instruction – general

An aeroplane shall not be taxied on the movement area of an aerodrome unless the person at the controls:

- a) has been duly authorized by the owner or in the case where it is leased, the lessee, or a designated agent;
- b) is fully competent to taxi the aeroplane;
- c) is qualified to use the. radio telephone if radio communications are required or a person qualified to use R.T. is on board; and
- d) has received instruction from a competent person in respect of aerodrome layout, and where appropriate, information on routes, signs, marking, lights, ATC signals and instructions, phraseology and procedures, and is able to conform to the operational standards required for safe aeroplane movement at the aerodrome.

Note: The detail requirements for taxi permit are given CAR Section 2 Series 'X' Part 'VIII'.

4.18 Refueling with passengers on board

4.18.1 An aeroplane should not be refueled when passengers are embarking, on board or disembarking unless it is attended by the pilot-in-command or other qualified personnel ready to initiate and direct an evacuation of the aeroplane by the most practical and expeditious means available.

4.18.2 When refueling with passengers embarking, on board or disembarking, two-way communications should be maintained by aeroplane intercommunications system or other suitable means between the ground crew supervising the refueling and the pilot-in command or other qualified personnel required by 4.18.1.

Note 1.-- The provisions of 4.18.1 do not necessarily require the deployment of integral aeroplane stairs or the opening emergency exits as a prerequisite to refueling.

Note 2.-- Provisions concerning aircraft refueling and guidance on safe refueling practices are contained in CAR Section 2, Series H-Part II.

Note 3.-- Additional precautions are required when refueling with fuels other than aviation kerosene or when refueling results in a mixture of aviation kerosene with other aviation turbine fuels or when an open line is used.

4.18.2 The operator shall also adhere to all the precautions laid down in Rule 25A of the Aircraft Rules, 1937 regarding fueling of aeroplane.

5. Aeroplane Performance Operating Limitations

5.1 An aeroplane shall be operated:

- a) in compliance with the terms of its airworthiness certificate or equivalent approved document;
- b) within the operating limitations prescribed by the manufacturer / DGCA; and.
- c) within the mass limitations imposed by compliance with the applicable noise certification Standards in Annex 16, Volume I, unless otherwise authorized, in exceptional circumstances for a certain aerodrome or a runway where there is no noise disturbance problem, by the appropriate authority of the State where the aerodrome is situated.

5.2 Placards, listings, instrument markings, or combinations thereof, containing those operating limitations prescribed by the manufacturer / DGCA for visual presentation, shall be displayed in the aeroplane.

6. Aeroplane Instruments and Equipment

6.1 All aeroplanes on all flights

6.1.1 General

In addition to the minimum equipment necessary for the issuance of a certificate of airworthiness, the instruments, equipment and flight documents prescribed in the following paragraphs shall be installed or carried, as appropriate, in aeroplanes according to the aeroplane used and to the circumstances under which the flight is to be conducted. The prescribed instruments and equipment, including their installation, shall be approved or accepted by DGCA.

6.1.2 Instruments

An aeroplane shall be equipped with instruments which will enable the flight crew to control the flight path of the aeroplane, carry out any required procedural manoeuvre, and observe the operating limitations of the aeroplane in the expected operating conditions.

6.1.3 Equipment

6.1.3.1 All aeroplanes on all flights

6.1.3.1.1 All aeroplanes on all flights shall be equipped with:

- a) an accessible first-aid kit;
- b) portable fire extinguishers of a type which, when discharged, will not cause dangerous contamination of the air within the aeroplane. At least one shall be located in:
 - 1) the pilot's compartment; and
 - 2) each passenger compartment that is separate from the pilot's compartment and not readily accessible to the pilot or co-pilot;
- c)
 - 1) a seat or berth for each person over an age of two years; and
 - 2) a seat belt for each seat and restraining belts for each berth;
- d) the following manuals, charts and information:
 - 1) the flight manual or other documents or information concerning any operating limitations prescribed for the aeroplane by the DGCA required for the application of para 5.

- 2) current and suitable charts for the route of the proposed flight and all routes along which it is reasonable to expect that the flight may be diverted;
 - 3) procedures, as prescribed in CAR, Section 4, Series 'E' Part I, for pilots-in-command of intercepted aircraft; and
 - 4) visual signals for use by intercepting and intercepted aircraft, as contained in CAR, Section 4, Series 'E' Part I; and
- e) spare electrical fuses of appropriate ratings for replacement of those accessible in flight.

6.1.3.1.2 All aeroplanes on all flights should be equipped with the ground - air signal codes for search and rescue purposes.

6.1.3.1.3 All aeroplanes on all flights should be equipped with a safety harness for each flight crew member seat.

Note.- Safety harness includes shoulder strap(s) and a seat belt which may be used independently.

6.1.4 Marking of break-in points

6.1.4.1 If areas of the fuselage suitable for break-in by rescue crews in an emergency are marked on an aeroplane, such areas shall be marked as shown in Appendix II. The colour of the markings shall be red or yellow, and if necessary they shall be outlined in white to contrast with the background.

6.1.4.2 If the corner markings are more than 2 m apart, intermediate lines 9 cm x 3 cm shall be inserted so that there is no more than 2 m between adjacent markings.

Note. – para 6.1.4 does not require any aeroplane to have break-in points.

6.2 All aeroplanes operated as VFR flights

6.2.1 All aeroplanes when operated as VFR flights shall be equipped with:

- a) a magnetic compass;
- b) an accurate timepiece indicating the time in hours, minutes and seconds;
- c) a sensitive pressure altimeter;
- d) an airspeed indicator; and
- e) such additional instruments or equipment as may be prescribed by the manufacturer/DGCA.

6.2.2 VFR flights which are operated as controlled flight should be equipped in accordance with 6.6

6.3 All aeroplanes on flights over water

6.3.1 Seaplanes

All seaplanes for all flights shall be equipped with:

- a) one life jacket, or equivalent individual floatation device, for each person on board, stowed in a position readily accessible from his seat or berth;
- b) equipment for making the sound signals for prescribed in international regulation for Preventing Collisions at Sea, where applicable;
- c) one anchor;
- d) one sea anchor (drogue), when necessary to assist in maneuvering.

Note.- "Seaplanes" includes amphibians operated as seaplanes.

6.3.2 Landplanes

6.3.2.1 Single-Engine Aeroplanes

All single-engine landplanes when flying en route over water beyond gliding distance from the shore should carry one life jacket or equivalent individual floatation device for each person on board, stowed in a position easily accessible from the seat or berth of the person for whose use it is provided.

Note.- "Landplanes" includes amphibians operated as landplanes.

6.3.3 All aeroplanes on extended flights over water

All aeroplanes when operated on extended flights over water shall be equipped with:

- a) when the aeroplane may be over water at a distance of more than 50 NM (93 km) away from land suitable for making an emergency landing:

one life jacket or equivalent individual floatation device for each person on board, stowed in a position easily accessible from the seat or berth of the person for whose use it is provided;
- b) when over water away from land suitable for making an emergency landing at a distance of more than 100 NM (185 km), in the case of single-engine aeroplanes, and more than 200 NM (370 km), in the case of multi-engine aeroplanes capable of continuing flight with one engine inoperative:
 - 1) life-saving rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency, provided with such lifesaving equipment including means of sustaining life as is appropriate to the flight to be undertaken; and

- 2) equipment for making the pyrotechnical distress signals described in CAR Section 4, Series E part 'I'.

6.4 All aeroplanes on flights over designated land areas

Aeroplanes when operated across land areas which may be designated by Airports Authority of India as areas in which search and rescue would be especially difficult, shall be equipped with such signaling devices and life-saving equipment (including means of sustaining life) as may be appropriate to the area over flown.

6.5 All aeroplanes on high altitude flights

6.5.1 All aeroplanes intended to be operated at high altitudes shall be equipped with oxygen storage and dispensing apparatus capable of storing and dispensing the oxygen supplies required in 4.9.

6.5.2 Aeroplanes for which the individual Certificate of Airworthiness is first issued on or after 1 January 1990.

Pressurized aeroplanes intended to be operated at flight altitudes at which the atmospheric pressure is less than 376 hPa shall be equipped with a device to provide positive warning to the flight crew of any dangerous loss of pressurization.

6.5.3 Aeroplanes for which the individual Certificate of airworthiness is first issued before 1 January 1990

Pressurized aeroplanes intended to be operated at flight altitudes at which the atmospheric pressure is less than 376 hPa should be equipped with a device to provide positive warning to the flight crew of any dangerous loss of pressurization.

6.6 All aeroplanes operated in accordance with the instrument flight rules

All aeroplanes when operated in accordance with the instrument flight rules or when the aeroplane cannot be maintained in a desired attitude without reference to one or more flight instruments, shall be equipped with:

- a) a magnetic compass;
- b) an accurate timepiece indicating the time in hours, minutes and seconds;
- c) a sensitive pressure altimeter;

Note.- Due to the long history of misreading, the use of drum-pointer altimeters is not recommended.

- d) an airspeed indicating system with a means of preventing malfunctioning due to either condensation or icing;
- e) a turn and slip indicator;
- f) an attitude indicator (artificial horizon);

- g) a heading indicator (directional gyroscope);

Note.- The requirements of e), f) and g) above, may be met by combinations of instruments or by integrated flight director systems provided that the safeguards against total failure, inherent in the three separate instruments, are retained.

- h) means of indicating whether the supply of power to the gyroscopic instruments is adequate;
- i) a means of indicating in the flight crew compartment the outside air temperature;
- j) a rate-of-climb and descent indicator; and
- k) such additional instruments or equipment as may be prescribed by DGCA.

6.7 All aeroplanes when operated at night

All aeroplanes, when operated at night, shall be equipped with:

- a) all the equipment specified in 6.6;
- b) the lights required by CAR, Section 4, Series 'E' Part I, for aircraft in flight or operating on the movement area of an aerodrome;
- c) a landing light;
- d) illumination for all flight instruments and equipment that are essential for the safe operation of the aeroplane;
- e) lights in all passenger compartments; and
- f) an electric torch for each crew member station.

6.8 All aeroplanes complying with the noise certification Standards in ICAO Annex 16, Volume I

An aeroplane shall carry a document attesting noise certification as per CAR section 2, Series 'X' Part 'VII'.

6.9 Ground Proximity Warning System (GPWS)

Aeroplanes so defined in CAR Section 2 Series 'I' Part VII shall be fitted with Ground Proximity Warning System (GPWS).

6.10 Flight Recorders

6.10.1 The operators shall comply with the requirements given in CAR Section 2 Series 'I' Part V and VI for installation of FDR (Flight Data Recorder) and CVR (Cockpit Voice Recorder) as the case may be or the combination recorder (FDR/CVR).

6.10.2 Flight recorder records - The pilot-in-command shall ensure, to the extent possible, in the event the aeroplane becomes involved in an accident or incident, the preservation of all related flight recorder records, and if necessary the associated flight recorders, and their retention in safe custody pending their disposition as determined by DGCA.

6.11 Mach number indicator

All aeroplanes with speed limitations expressed in terms of Mach number shall be equipped with a Mach number indicator.

Note.- This does not preclude the use of the airspeed indicator to derive Mach number for ATS purposes.

6.12 Emergency locator transmitter (ELT)

6.12.1 Except as provided for in 6.12.2, until 1 January 2005 all aeroplanes operated on extended flights over water as described in 6.3.3 b) and when operated on flights over designated land areas as described in 6.4 shall be equipped with one ELT.

6.12.2 All aeroplanes for which the individual certificate of airworthiness is first issued after 1 January 2002, operated on extended flights over water as described in 6.3.3 b) and when operated on flights over designated land areas as described in 6.4 shall be equipped with one automatic ELT.

6.12.3 From 1 January 2005, all aeroplanes operated on extended flights over water as described in 6.3.3 b) and when operated on flights over designated land areas as described in 6.4 shall be equipped with one automatic ELT.

6.12.4 It is recommended that all aeroplanes should carry an automatic ELT.

6.12.5 ELT equipment carried to satisfy the requirements of 6.12.1, 6.12.2, 6.12.3 and 6.12.4 shall operate in accordance with the relevant provisions of Annex 10, Volume III.

6.12.6 All aeroplanes shall be fitted with an ELT meeting the requirements as laid down in FAA TSO C-91a operating on frequency of 121.5 MHz for a minimum period of 48 hours which should be of the type as given below:

- (i) For all aeroplanes flying over land the ELT should be capable of being activated due to impact of 'G' load as specified in FAA TSO C-91a . However ELT to TSO C91 may also continue to be used if already installed on the aeroplane.
- (ii) For all aeroplanes flying over water the ELT should be of water activated type.
- (iii) All aeroplanes operating over water beyond a distance of 100 NM from the sea shore shall be equipped with at least two water activated ELT.

Note 1: *The above requirement is not applicable to aircraft engaged in training flights/ research and development work operating within 50 nm of the vicinity of the airport. For cross country flights the aircraft should be fitted with ELT either portable or fixed type.*

Note 2: *(i) Each ELT must be attached to the airplane in such a manner that the probability of damage to the transmitter in the event of crash impact is minimised. The ELT must be installed on the aircraft as far as aft , as practicable.*

(ii) Batteries used in the ELT must be replaced or recharged, if the batteries are rechargeable:

(a) when the transmitter has been in use for more than 1 cumulative hour;

or

(b) when 50 percent of their useful life or for rechargeable batteries, 50 percent of their useful life of charge as established by the transmitter manufacturer has expired.

The new expiration date for replacing or recharging the battery must be legibly marked on the outside of the transmitter and entered in the aircraft maintenance record. This does not apply to water activated batteries that are essentially unaffected during probable storage intervals

6.13 Aeroplanes required to be equipped with Pressure Altitude Reporting Transponder

All aeroplanes shall be fitted with Pressure Altitude Reporting Transponder in accordance with CAR Section 2 Series 'R' Part IV.

6.14 Aeroplanes required to be equipped with an airborne collision avoidance system (ACAS II)

All aeroplanes shall be fitted with airborne collision avoidance system (ACAS II) in accordance with CAR Section 2 , Series 'I' Part VIII.

6.15 Microphones

All flight crew members required to be on flight deck duty shall communicate through boom or throat microphones below the transition level / altitude.

6.16 Significant weather detection

When carrying passengers, pressurised aeroplane shall be equipped with operative weather radar or other significant weather detection equipment whenever such aeroplane are operated in areas where thunderstorms or other potentially hazardous weather conditions may be expected to exist along the route either at night or under Instrument Meteorological Conditions.

Note:- After 31.1.2003 all aircraft permitted to fly in IMC/Night Conditions and carrying passengers(s) should mandatorily have serviceable weather radar,

provided the STC is available or the manufacturer has installed this equipment, as a part of the type certificate of aircraft and the pilots operating such flights should undergo prior training in operating/interpretation of weather radar picture.

7. Aeroplane Communication And Navigation Equipment

7.1 Communication equipment

7.1.1 An aeroplane to be operated in accordance with the instrument flight rules or at night shall be provided with radio communication equipment. Such equipment shall be capable of conducting two-way communication with those aeronautical stations and on those frequencies prescribed by the appropriate authority

Note.— The requirements of 7.1.1 are considered fulfilled if the ability to conduct the communications specified therein is established during radio propagation conditions which are normal for the route.

7.1.2 When compliance with 7.1.1 requires that more than one communications equipment unit be provided, each shall be independent of the other or others to the extent that a failure in any one will not result in failure of any other.

7.1.3 An aeroplane to be operated in accordance with the visual flight rules, but as a controlled flight, shall, unless exempted by DGCA be provided with radio communication equipment capable of conducting two-way communication at any time during flight with such aeronautical stations and on such frequencies as may be prescribed by the appropriate authority.

7.1.4 An aeroplane to be operated on a flight to which the provisions of 6.3.3 or 6.4 apply shall, unless exempted by DGCA be provided with radio communication equipment capable of conducting two-way communication at any time during flight with such aeronautical stations and on such frequencies as may be prescribed by the appropriate authority / DGCA.

7.1.5 The radio communication equipment required in accordance with 7.1.1 to 7.1.4 shall provide for communication on the aeronautical emergency frequency 121.5 MHz.

7.2 Navigation equipment

7.2.1 An aeroplane shall be provided with navigation equipment which will enable it to proceed:

- a) in accordance with the flight plan; and
- b) in accordance with the requirements of air traffic services; except when, if not so precluded by DGCA, navigation for flights under the visual flight rules is accomplished by visual reference to landmarks at least every 60 NM (110 km).

7.2.2 For flights in defined portions of airspace or on routes where an RNP type has been prescribed, an aeroplane shall, in addition to the requirements specified in 7.2.1:

- a) be provided with navigation equipment which will enable it to operate in accordance with the prescribed RNP type(s); and
- b) be authorized by the DGCA for operations in such airspace.

Note.— Information on RNP and associated procedures, and guidance concerning the approval process, are contained in CAR Section 2, Series O-Part XII.

7.2.3 For flights in defined portions of airspace where, based on Regional Air Navigation Agreement, minimum navigation performance specifications (MNPS) are prescribed, an aeroplane shall be provided with navigation equipment which

- a. continuously provides indications to the flight crew of adherence to or departure from track to the required degree of accuracy at any point along that track; and
- b. has been authorized by the DGCA for MNPS operations concerned.

Note.— The prescribed minimum navigation performance specifications and the procedures governing their application are given in CAR Section 2, Series 'O' Part IX.

7.2.4 For flights in defined portions of airspace where, based on Regional Air Navigation Agreement, a vertical separation minimum (VSM) of 1 000 ft (300 m) is applied above FL 290, an aeroplane

- a) shall be provided with equipment which is capable of:
 - 1) indicating to the flight crew the flight level being flown;
 - 2) automatically maintaining a selected flight level;
 - 3) providing an alert to the flight crew when a deviation occurs from the selected flight level. The threshold for the alert shall not exceed 300 ft (± 90 m), and
 - 4) automatically reporting pressure-altitude; and
- b) shall be authorized by the DGCA for operation in the airspace concerned.

7.2.5 Prior to granting the RVSM approval required in accordance with 7.2.4 b), the DGCA shall be satisfied that:

- g) the vertical navigation performance capability of the aeroplane satisfies the requirements specified in CAR Sec 2, Series 'O' Part XI;
- h) the operator has instituted appropriate procedures in respect of continued airworthiness (maintenance and repair) practices and programmes; and
- i) the operator has instituted appropriate flight crew procedures for operations in RVSM airspace.

Note.-- An RVSM approval is valid globally on the understanding that any operating procedures specific to a given region will be stated in the operations manual or appropriate crew guidance.

7.2.6 Operator shall ensure that, in respect of those aeroplanes mentioned in 7.2.4, adequate provisions exist for:

- a) receiving the reports of height-keeping performance issued by the monitoring agencies established in accordance with Annex 11, 3.3.4.1; and
- b) taking immediate corrective action for individual aircraft, or aircraft type groups, identified in such reports as not complying with the height-keeping requirements for operation in airspace where RVSM is applied.

7.2.7 DGCA is responsible for airspace where RVSM has been implemented, or to issue RVSM approvals to operators within India. An aircraft operating without the approval in Indian airspace, and an operator for whom DGCA has regulatory oversight responsibility is found to be operating without the required approval in the airspace of another State, DGCA may take

appropriate action in respect of aircraft and operators found to be operating in RVSM airspace without a valid RVSM approval.

- 7.2.8 The aeroplane shall be sufficiently provided with navigation equipment to ensure that, in the event of the failure of one item of equipment at any stage of the flight, the remaining equipment will enable the aeroplane to navigate in accordance with 7.2.1 and where applicable 7.2.2, 7.2.3 and 7.2.4.

Note.-- Guidance material relating to aircraft equipment necessary for flight in airspace where RVSM is applied is contained in the Manual on Implementation of a 300 m (1000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive (Doc 9574).

- 7.2.9 On flights in which it is intended to land in instrument meteorological conditions, an aeroplane shall be provided with radio equipment capable of receiving signals providing guidance to a point from which a visual landing can be effected. This equipment shall be capable of providing such guidance for each aerodrome at which it is intended to land in instrument meteorological conditions and for any designated alternate aerodromes.

8. Aeroplane Maintenance

8.1 Responsibilities

- 8.1.1 The owner of an aeroplane, or in the case where it is leased, the lessee, ensure that:-

- a) the aeroplane is maintained in an airworthy condition;
- b) the operational and emergency equipment necessary for the intended flight is serviceable;
- c) the Certificate of Airworthiness of the aeroplane remains valid;
- d) the maintenance of the aeroplane is performed in accordance with a maintenance programme acceptable to DGCA.

- 8.1.2 The aeroplane shall not be operated unless it is maintained and released to service by an organization approved in accordance with CAR , Section –2, Series E part I or CAR 145.

- 8.1.3 Intentionally left blank.

8.2 Maintenance records

- 8.2.1 The owner shall ensure that the following records are kept for the periods mentioned in 8.2.2;

- a) the total time in service (hours, calendar time and cycles, as appropriate) of the aeroplane and all life limited components;
- b) the current status of compliance with all mandatory continuing airworthiness information;
- c) appropriate details of modifications and repairs;

- d) the time in service (hours, calendar time and cycles, as appropriate) since last overhaul of the aeroplane or its components subject to a mandatory overhaul life;
- e) the current status of the aeroplane's compliance with the maintenance programme; and
- f) the detailed maintenance records to show that all requirements for signing a maintenance release have been met.

8.2.2 The records referred to in 8.2.1(a) to (e) shall be kept for a minimum period of 90 days after the unit to which they refer has been permanently withdrawn from service, and the records in 8.2.1 (f) for a minimum period of one year after the signing of the maintenance release.

8.2.3 The lessee of an aeroplane shall comply with the requirements of 8.2.1 and 8.2.2, as applicable, while the aeroplane is leased.

8.3 Continuing airworthiness information

The owner of an aeroplane or in the case where it is leased, the lessee, shall, as prescribed by DGCA, ensure that the information resulting from maintenance and operational experience with respect to continuing airworthiness, is transmitted as required by CAR, Section 2, Series 'C' Part I.

8.4 Modifications and repairs

All modifications and repairs shall comply with airworthiness requirements acceptable to the DGCA. Procedures shall be established to ensure that the substantiating data supporting compliance with the airworthiness requirements are retained.

8.5 Maintenance release

8.5.1 A maintenance release shall be completed and signed, as prescribed by the DGCA, to certify that the maintenance work performed has been completed satisfactorily.

8.5.2 A maintenance release shall contain a certification including:

- a) basic details of the maintenance carried out;
- b) date such maintenance was completed;
- c) when applicable, the identity of the approved maintenance organization; and
- d) the identity of the person or persons signing the release.

9. AEROPLANE FLIGHT CREW

9.1 Qualifications

9.1.1 The pilot-in-command shall ensure that the licences of each flight crew member have been issued or rendered valid by the DGCA, and are properly

rated and of current validity, and shall be satisfied that flight crew members have maintained competence.

9.1.2 The pilot in command of an aeroplane equipped with an airborne collision avoidance system (ACAS II) shall ensure that each flight crew member has been appropriately trained to competency in the use of ACAS II equipment and avoidance of collisions.

Note 1.- Procedures for the use of ACAS II equipment are specified in the procedures for Air Navigation Services - Aircraft operations (PANS –OPS, Doc 8168), Volume I – Flight procedures . ACAS II Training Guidelines for pilots are provided in PANS –OPS, Volume I, Attachment A to Part VIII.

Note 2.- Appropriate training , to the satisfaction of DGCA, to competency in the use of ACAS II equipment and the avoidance of collisions shall be as per CAR Section –2 , Series 'I' Part VIII.

9.2 Composition of the flight crew

The number and composition of the flight crew shall not be less than that specified in the flight manual or other documents associated with the certificate of airworthiness and also be as per CAR, Section 8, Series 'A' Part I.



(P. K. Chattopadhyay)
Joint Director General

CARRIAGE AND USE OF OXYGEN
Supplementary to 4.9

Introduction

The performance of crew members and the well-being of passengers during flights at such altitudes where a lack of oxygen might result in impairment of faculties are of major concern. Research conducted in altitude chambers or by exposure to mountain elevations indicates that human tolerance could be related to the altitude concerned and the exposure time. The subject is dealt with in detail in the *Manual of Civil Aviation Medicine* (Doc 8984). In the light of the above and to further assist the pilot-in-command in providing the oxygen supply intended by 4.9 of this CAR, the following guidelines, are considered relevant.

1. Oxygen supply

1.1 A flight to be operated at altitudes at which the atmospheric pressure in personnel compartments will be less than 700 hPa should not be commenced unless sufficient stored breathing oxygen is carried to supply:

a) all crew members and at least 10 per cent of the passengers for any period in excess of 30 minutes that the pressure in compartments occupied by them will be between 700 hPa and 620 hPa; and

b) all crew members and passengers for any period that the atmospheric pressure in compartments occupied by them will be less than 620 hPa.

1.2 A flight to be operated with a pressurized aeroplane should not be commenced unless a sufficient quantity of stored breathing oxygen is carried to supply all crew members and passengers, as is appropriate to the circumstances of the flight being undertaken, in the event of loss of pressurization, for any period that the atmospheric pressure in any compartment occupied by them would be less than 700 hPa. In addition, when an aeroplane is operated at flight altitudes at which the atmospheric pressure is less than 376 hPa, or which, if operated at flight altitudes at which the atmospheric pressure is more than 376 hPa and cannot descend safely within four minutes to a flight altitude at which the atmospheric pressure is equal to 620 hPa, there shall be no less than a 10-minute supply for the occupants of the passenger compartment.

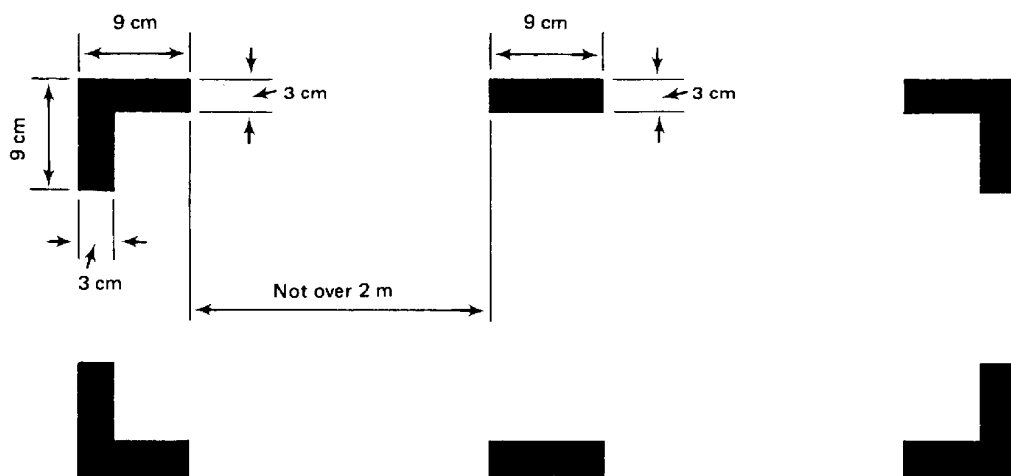
2. Use of oxygen

2.1 All flight crew members, when engaged in performing duties essential to the safe operation of an aeroplane in flight, should use breathing oxygen continuously whenever the circumstances prevail for which its supply has been indicated to be necessary in 1.1 or 1.2.

- 2.2 All flight crew members of pressurized aeroplanes operating above an altitude where the atmospheric pressure is less than 376 hPa should have available at the flight duty station a quick donning type of mask which will readily supply oxygen upon demand.

Note.— Approximate altitudes in the Standard Atmosphere corresponding to the values of absolute pressure used in the text are as follows:

Absolute pressure	Metres	Feet
700 hPa	3000	10 000
620 hPa	4000	13 000
376 hPa	7600	25 000



MARKING OF BREAK-IN POINTS
(Ref. Para 6.1.4.1)