GOVERNMENT OF INDIA

OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION

TECHNICAL CENTRE, OPP SAFDURJUNG AIRPORT, NEW DELHI

CIVIL AVIATION REQUIREMENTS
SECTION 8 – AIRCRAFT OPERATIONS
SERIES O PART II
ISSUE II, 13th SEPTEMBER, 2021 **EFFECTIVE: 21 October 2026**

File No: AV-11012/6/2020-FSD

Subject: OPERATION OF COMMERCIAL AIR TRANSPORT – AEROPLANES

1 INTRODUCTION

1.1 This CAR lays down the minimum operational, equipment and instrument requirements for aeroplanes registered in India and engaged in domestic and international air transport operations.

This CAR has been issued under the provisions of Rules 29 C and 133A of the Aircraft Rules, 1937 and is in conformity with ICAO Annex 6 Part I (till amendment 51)

1.2 Applicability: These requirements are applicable to scheduled, including scheduled commuter as well as non-scheduled air transport operations.

2 DEFINITIONS

Accelerate-stop distance available (ASDA): The length of the take-off run available plus the length of stop way, if provided.

***Acts of unlawful interference*.** These are acts or attempted acts such as to jeopardize the safety of civil aviation, including but not limited to:
a) unlawful seizure of aircraft,

b) destruction of an aircraft in service,

c) hostage-taking on board aircraft or on aerodromes,

d) forcible intrusion on board an aircraft, at an airport or on the premises of an aeronautical facility,

e) introduction on board an aircraft or at an airport of a weapon or hazardous device or material intended for criminal purposes,

f) use of an aircraft in service for the purpose of causing death, serious bodily injury, or serious damage to property or the environment,

g) communication of false information such as to jeopardize the safety of an aircraft in flight or on the ground, of passengers, crew, ground personnel or the general public, at an airport or on the premises of a civil aviation facility.

Advanced aircraft. An aircraft with equipment in addition to that required for a basic aircraft for a given take-off, approach or landing operation.

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 2 D instrument approach operations, expressed in terms of visibility and/or runway visual range; minimum descent altitude/height (MDA/H) and, if necessary, cloud conditions; and

c) Landing in 3D instrument approach operations, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H) appropriate to the type and/or category of the operation.

Agreement Summary: When an aircraft is operating under Article 83 bis agreement between the state of Registry and another state, the agreement summary is a document transmitted with Article 83 bis agreement registered with ICAO Council that identifies succinctly and clearly which functions and duties are transferred by the State of Registry to that other state.

Note – The other state in the above definition refers to the state of the operator for commercial air transport operations.

Air traffic service (ATS). A generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service).

Aircraft Operating Manual: A manual, containing normal, abnormal and emergency procedures, checklists, limitations, performance information, details of the aircraft systems and other material relevant to the operation of the aircraft. *Note: - The aircraft operating manual is the part of the operation manual.*

Aircraft tracking: A process, established by the operator, that maintains and updates, at standardized intervals, a ground based record of the four dimensional position of individual aircraft in flight.

Air operator Permit/ certificate (AOC): A Permit /Certificate authorizing an operator to carry out specified commercial air transport operations.

Airworthy: The status of an aircraft, engine, propeller or part when it conforms to its approved design and is in a condition for safe operation.

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 where the necessary services and facilities are available, where aircraft performance requirements can be met and which is operational at the expected time of use. Alternate aerodromes include the following:

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

En-route alternate*.* An alternate aerodrome at which an aircraft would be able to land in the event that a diversion becomes necessary while en-route.

Destination alternate*.* An alternate aerodrome at which an aircraft would be able to land 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 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.

Appropriate airworthiness requirements. The comprehensive and detailed airworthiness codes established, adopted or accepted by a Contracting State for the class of aircraft, engine or propeller under consideration.

Area navigation: A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space- based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Basic aircraft. An aircraft which has the minimum equipment required to perform the intended take-off, approach or landing operation.

Cabin crew member: A crew member who performs, in the interest of safety of passengers, duties assigned by the operator or the pilot-in-command of the aircraft, but who shall not act as a flight crew member.

COMAT. Operator material carried on an operator's aircraft for the operator's own purposes.

Combined vision system (CVS). A system to display images from a combination of an enhanced vision system (EVS) and a synthetic vision system (SVS).

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

Configuration deviation list (CDL): A list established by the organization responsible for the type design with the approval of the State of Design which identifies any external parts of an aircraft type which may be missing at the commencement of a flight, and which contains, where necessary, any information on associated operating limitations and performance correction.

Contaminated runway. A runway is contaminated when a significant portion of the runway surface area (whether in isolated areas or not) within the length and width being used is covered by one or more of the substances listed in the runway surface condition descriptors.

Note.— Further information on runway surface condition descriptors can be found in the CAR *section 4 Series B Part I.*

Continuing airworthiness: The set of processes by which all aircraft comply with the applicable airworthiness requirements and remain in a condition for safe operation throughout their operating life.

Continuing airworthiness records. Records which are related to the continuing airworthiness status of an aircraft, engine, propeller or associated part.

Continuous descent final approach (CDFA). A technique, consistent with stabilized approach procedures, for flying the final approach segment (FAS) of an instrument non- precision approach (NPA) procedure as a continuous descent, without level- off, from an altitude/height at or above the final approach fix altitude/height to a point approximately 15 m (50 ft) above the landing runway threshold or the point where the flare maneuver begin for the type of aircraft flown; for the FAS of NPA procedure followed by circling approach, the CDFA techniques applies until circling approach minima (circling OCA/H) or visual flight maneuver altitude/height are reached.

Continuous Airworthiness Maintenance Organization Exposition: A document endorsed by the head of the maintenance organization which details the maintenance organization's structure and management responsibilities, scope of work, description of facilities, maintenance procedures and quality assurance or inspection systems.

Crew member: A person assigned by an operator to duty on an aircraft during a flight duty period.

Cruise relief pilot: A flight crew member who is assigned to perform pilot tasks during cruise flight, to allow the pilot-in-command or a co-pilot to obtain planned rest.

Cruising level: A level maintained during a significant portion of a flight.

Dangerous goods: Articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in the Technical Instructions or which are classified according to those Instructions.

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

Decision altitude/height (DA/H): A specified altitude or height in a 3D instrument approach *operation* 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 (MSL) 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".

Dry runway. A runway is considered dry if its surface is free of visible moisture and not contaminated within the area intended to be used.

Extended diversion time operations (EDTO). Any operation by an aeroplane with two or more turbine engines where the diversion time to an en-route alternate aerodrome is greater than the threshold time established by the State of the Operator.

EDTO critical fuel. The fuel quantity necessary to fly to an end-route alternate aerodrome considering, at the most critical point on the route, the most limiting system failure.

Note - Guidance on EDTO critical fuel scenarios is contained in the Extended Diversion Time Operations Manual (Doc 10085 Operations Manual (Doc 10085)

EDTO-significant system. An aeroplane system whose failure or degradation could adversely affect the safety particular to an EDTO flight, or whose continued functioning is specifically important to the safe flight and landing of an aeroplane during an EDTO diversion.

Electronic flight bag (EFB). An electronic information system, comprised of equipment and Applications, for flight crew which allows for storing, updating, displaying and processing of EFB functions to support flight operations or duties.

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.

Engine: A unit used or intended to be used for aircraft propulsion. It consists of at least those components and equipment necessary for functioning and control, but excludes the propeller/rotors (if applicable).

Enhanced vision system (EVS): A system to display electronic real-time images of the external scene achieved through the use of image sensors.

Note. — EVS does not include night vision imaging systems (NVIS).

Final approach segment (FAS). That segment of an instrument approach procedure in which alignment and descent for landing are accomplished.

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

Flight Data Analysis: A process of analyzing recorded flight data in order to improve the safety of flight operations.

Flight duty period. A period which commences when a flight or cabin crew member is required to report for duty that includes a flight or a series of flights and which finishes when the aircraft finally comes to rest and the engines are shut down at the end of the last flight on which he/she is a crew member.

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 operations officer/flight dispatcher: A person designated by the operator to engage in the control and supervision of flight operations, whether licensed or not, suitably qualified in accordance with CAR Section 7, Series 'M' Part II, who supports, briefs and/or assists the pilot-in-command in the safe conduct of the flight.

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 complementing accident/incident investigation.

Automatic deployable flight recorder (ADFR). A combination flight recorder installed on the aircraft which is capable of automatically deploying from the aircraft

Flight safety documents system: A set of interrelated documentation established by the operator, compiling and organizing information necessary for flight and ground operations, and comprising, as a minimum, the operations manual and the operator's maintenance control manual.

Flight simulation training device: Any one of the following three types of apparatus in which flight conditions are simulated on the ground:

A flight simulator, which provides an accurate representation of the flight deck of a particular aircraft type to the extent that the mechanical, electrical, electronic, etc. aircraft systems control functions, the normal environment of flight crew members, and the performance and flight characteristics of that type of aircraft are realistically simulated;

A flight procedures trainer, which provides a realistic flight deck environment, and which simulates instrument responses, simple control functions of mechanical, electrical, electronic,

etc. aircraft systems, and the performance and flight characteristics of aircraft of a particular class;

A basic instrument flight trainer, which is equipped with appropriate instruments, and which simulates the flight deck environment of an aircraft in flight in instrument flight conditions.

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

Ground handling: Services necessary for an aircraft's arrival at, and departure from, an airport, other than air traffic services.

Head-up display (HUD): A display system that presents flight information into the pilot's forward external field of view.

Human Factors Principles: Principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance.

Human performance: Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

Instrument approach operations. An approach and landing using instruments for navigation guidance based on an instrument approach procedure. There are two methods for executing instrument approach operations:

a) a two-dimensional (2D) instrument approach operation, using lateral navigation guidance only; and

b) A three-dimensional (3D) instrument approach operation, using both lateral and vertical navigation guidance.

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

a) A ground-based radio navigation aid; or

b) Computer-generated navigation data from ground-based, space-based, self-contained navigation aids or a combination of these.

Instrument approach procedure (IAP). A series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply. Instrument approach procedures are classified as follows:

Non-precision approach (NPA) procedure. An instrument approach procedure designed for 2D instrument approach operations Type A.

Note.— *Non-precision approach procedures may be flown using a continuous descent final approach (CDFA) technique. CDFAs with advisory VNAV guidance calculated by on-board* 3 *equipment are considered 3D instrument approach operations. CDFAs with manual calculation of the required rate of descent are considered 2D instrument approach operations. For more information on CDFAs, refer to PANS-OPS (Doc 8168), Volume I, Part II, Section 5.*

Approach procedure with vertical guidance (APV). A performance-based navigation (PBN) instrument approach procedure designed for 3D instrument approach operations Type A.

Precision approach (PA) procedure. An instrument approach procedure based on navigation systems (ILS, MLS, GLS and SBAS Cat I) designed for 3D instrument approach operations Type A or B.
Note*. — Refer to 4.2.8.3 for instrument approach operation types.*

Instrument meteorological conditions (IMC): Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling (CAR Section 9, Series 'C' Part 1) less than the minima specified for visual meteorological conditions.

Note – The specified minima for visual meteorological conditions are contained in CAR Section 9, Series 'C' Part 1

Isolated aerodrome. A destination aerodrome for which there is no destination alternate aerodrome suitable for a given aeroplane type.

Landing distance available (LDA): The length of runway which is declared available and suitable for the ground run of an aeroplane landing.

Large aeroplane: An aeroplane of a maximum certificated take-off mass of over 5700kg.

Low-visibility operations (LVO)**.** Approach operations in RVRs less than 550 m and/or with a DH less than 60 m (200 ft) or take-off operations in RVRs less than 400 m.

Maintenance The performance of tasks on an aircraft, engine, propeller or associated part required to ensure the continuing airworthiness of an aircraft, engine, propeller or associated part 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 in accordance with appropriate airworthiness requirements.*

Master minimum equipment list (MMEL): A list established for a particular aircraft type by the organization responsible for the type design with the approval of the State of Design containing items, one or more of which is permitted to be unserviceable at the commencement of a flight. The MMEL may be associated with special operating conditions, limitations or procedures.

Maximum diversion time. Maximum allowable range, expressed in time, from a point on a route to an en-route alternate aerodrome.

Maximum mass: Maximum certificated take-off mass.

Minimum descent altitude (MDA) or Minimum descent height (MDH): A specified altitude or height in a 2 D instrument approach operation or circling approach operation 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 2 m (7 ft) below the aerodrome elevation. A minimum descent height fora 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 ofa 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”

Minimum equipment list (MEL): A list which provides for the operation of aircraft, subject to specified conditions, with particular equipment inoperative, prepared by an operator in conformity with, or more restrictive than, the MMEL established for the aircraft type.

Modification. A change to the type design of an aircraft, engine or propeller.

Note.— a modification may also include the embodiment of the modification which is a maintenance task subject to a maintenance release. Further guidance on aircraft maintenance – modification and repair is contained in the Airworthiness Manual (Doc 9760).

Navigation specification: A *set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications:*

Operational credit*. A credit authorized for operations with an advanced aircraft enabling a lower aerodrome operating minimum than would normally be authorized for a basic aircraft, based upon the performance of advanced aircraft systems utilizing the available external infrastructure.*

Performance-based aerodrome operating minimum (PBAOM)*. A lower aerodrome operating minimum, for a given take-off, approach or landing operation, than is available when using a basic aircraft.*

Note 1.— The PBAOM is derived by considering the combined capabilities of the aircraft and available ground facilities. Information can be found in CAR Section 8 Series C Part I. Additional guidance material on PBAOM may be found in the Manual of All-Weather Operations (Doc 9365).

Note 2. — PBAOM may be based on operational credits.

Note 3.— PBAOM are not limited to PBN operations.

Required navigation performance (RNP) specification*.* A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.

(RNAV) specification*.* A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

Note 1. — The Performance-based Navigation (PBN) Manual *(Doc 9613), Volume II, contains detailed guidance on navigation specifications.*

Note 2.— The term RNP as previously defined as "a statement of the navigation performance, necessary for operation within a defined airspace", has been removed from Annex 6 Part I as the concept of RNP has been overtaken by the concept of PBN.

The term RNP in CAR Section 8 Series O Part II is now solely used in context of navigation specifications that require performance monitoring and alerting. E.g. RNP 4 refers to the aircraft and operating requirements, including a 4 NM lateral performance with onboard performance monitoring and alerting that are detailed in the PBN Manual (Doc 9613).

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.

Note - Civil twilight ends in the evening when the centre of the sun's disc is 6 degrees below the horizon and begins in the morning when the centre of the sun's disc is 6 degrees below the horizon.

Obstacle clearance altitude (OCA) or obstacle clearance height (OCH): The lowest altitude or the 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 approach procedures to the aerodrome elevation or the threshold elevation if that is more than 2 m (7 ft) below the aerodrome elevation. An obstacle clearance height for a circling approach procedures 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".

Operational control: The exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of the flight.

Operational flight plan: The operator's plan for the safe conduct of the flight based on considerations of aeroplane performance, other operating limitations and relevant expected conditions on the route to be followed and at the aerodromes concerned.

Operations manual: A manual containing procedures, instructions and guidance for use by operational personnel in the execution of their duties.

Operations specifications. The authorizations including specific approvals conditions and limitations associated with the air operator certificate and subject to the conditions in the operations manual.

Operator: The person, organization or enterprise engaged in or offering to engage in an aircraft operation.

Operator's maintenance control manual: A document which describes the operator's procedures necessary to ensure that all scheduled and unscheduled maintenance is performed on the operator's aircraft on time and in a controlled and satisfactory manner.

Performance-based communication (PBC). Communication based on performance specifications applied to the provision of air traffic services.

Note.— An RCP specification includes communication performance requirements that are allocated to system components in terms of the communication to be provided and associated transaction time, continuity, availability, integrity, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

Performance-based navigation (PBN): Area navigation based on performance requirements of aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

Note.— Performance requirements are expressed in navigation specifications (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity and functionality needed for the proposed operation in the context of a particular airspace concept. Availability of a global navigation satellite system signal in space and/or some other navigation aid infrastructure is considered within the airspace concept in order to enable the navigation application.

Performance-based surveillance (PBS). Surveillance based on performance specifications applied to the provision of air traffic services.

Note.— An RSP specification includes surveillance performance requirements that are allocated to system components in terms of the surveillance to be provided and associated data delivery time, continuity, availability, integrity, accuracy of the surveillance data, safety and functionality needed for the proposed operation in the context of a particular airspace concept

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.

Point of no return*.* The last possible geographic point at which an aircraft can proceed to the destination aerodrome as well as to an available en-route alternate aerodrome for a given flight.

Pressure-altitude: An atmospheric pressure expressed in terms of altitude which corresponds to that pressure in the Standard Atmosphere.

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 aircraft, engine, propeller or associated part to an airworthy condition, in accordance with the appropriate airworthiness requirements, after it has been damaged or subjected to wear.*

Required communication performance (RCP) specification A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based communication.

Required surveillance performance (RSP) specification. A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based surveillance.

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

Safe forced landing: Unavoidable landing or ditching with a reasonable expectancy of no injuries to persons in the aircraft or on the surface.

Safety management system (SMS): A systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.

Small aeroplane: An aeroplane of a maximum certificated take-off mass of 5700 kg or less.

Specific approval: A specific approval is an approval which is documented in the Operations Specifications for commercial air transport operations or in the list of specific approvals for non-commercial operations.

Note:- The terms authorization, specific approval, approval and acceptance are further described in Attachment C.

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 (ICAO Doc 9587).

State of the Aerodrome. The State in whose territory the aerodrome is located.

State of the Operator: The State in which the operator's principal place of business is located or, if there is no such place of business, the operator's permanent residence.

Synthetic flight trainer: Any one of the following three types of apparatus in which flight conditions are simulated on the ground:

A flight simulator, which provides an accurate representation of the flight deck of a particular aircraft type to the extent that the mechanical, electrical, electronic, etc. aircraft systems control functions, the normal environment of flight crew members, and the performance and flight characteristics of that type of aircraft are realistically simulated;

A flight procedures trainer, which provides a realistic flight deck environment, and which simulates instrument responses, simple control functions of mechanical, electrical, electronic, etc. aircraft systems, and the performance and flight characteristics of aircraft of a particular class;

A basic instrument flight trainer, which is equipped with appropriate instruments, and which simulates the flight deck environment of an aircraft in flight in instrument flight conditions.

Synthetic vision system (SVS). A system to display data-derived synthetic images of the external scene from the perspective of the flight deck.

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

Threshold time. The range, expressed in time, established by the State of the Operator to an en-route alternate aerodrome, whereby any time beyond requires a specific approval for EDTO from the DGCA.

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.

Wet runway. The runway surface is covered by any visible dampness or water up to and including 3 mm deep within the intended area of use.

Abbreviations

CAT III	Category III
CVS	Combined vision system
COMAT	Operator material
EFB	Electronic flight bag
EUROCAE	European Organisation for Civil Aviation Equipment
HEA	High elevation aerodromes
LED	Light emitting diode
NVIS	Night vision imaging systems
PBC	Performance-based communication
PBS	Performance-based surveillance
RSP	Required Surveillance performance
RTCA	Radio Technical Commission for Aeronautics
SVS	Synthetic vision system

3. GENERAL REQUIREMENTS

3.1 Compliance with laws, regulations and procedures.

3.1.1 The operator engaged in international operations shall ensure that all employees when abroad are fully aware and shall comply with the laws, regulations and procedures of those States in which operations are conducted.

3.1.2 The operator shall ensure that all pilots are familiar with the laws, regulations and procedures, pertinent to the performance of their duties, prescribed for the areas to be traversed, the aerodromes to be used and the air navigation facilities relating thereto. The operator shall ensure that other members of the flight crew are familiar with such of these laws, regulations and procedures as are pertinent to the performance of their respective duties in the operation of the aeroplane.

Note.— Information for pilots and flight operations personnel on flight procedure parameters and operational procedures is contained in PANS OPS, Volume I. Criteria for the construction of visual and instrument flight procedures are contained in PANS-OPS, Volume II. Obstacle clearance criteria and procedures used in certain States may differ from PANSOPS, and knowledge of these differences is important for safety reasons

3.1.3 An operator or a designated representative shall have responsibility for operational control.

Note.— The rights and obligations of a State in respect to the operation of aeroplanes registered in that State are not affected by this provision.

3.1.4 Responsibility for operational control shall be delegated only to the pilot-in command and to a flight operations officer/flight dispatcher if an operator's approved method of control and supervision of flight operations requires the use of flight operations officer/flight dispatcher personnel.

Note. — Guidance on the operational control organization and the role of the flight operations officer/flight dispatcher is contained in the Manual of Procedures for Operations Inspection, Certification and Continued Surveillance (Doc 8335). Detailed guidance on the authorization, duties and responsibilities of the flight operations officer/flight dispatcher is contained in the Guidance on the Preparation of an Operations Manual (Doc 10153). The requirements for age, skill, knowledge and experience for licensed flight operations officers/flight dispatchers are contained in CAR Section 7 Series 'M' Part II.

3.1.5 If an emergency situation which endangers the safety of the aeroplane or persons becomes known first to the flight operations officer/flight dispatcher, action by that person in accordance with CAR Section 7 Series 'M' Part II and para 4.6.2 of this CAR, shall include, where necessary, notification to the appropriate authorities of the nature of the situation without delay, and request for assistance if required.

3.1.6 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 shall notify the DGCA without delay. If required by the State in which the incident occurs, the pilot-in-command shall submit a report on any such violation to the appropriate authority of such State; in that event, the pilot- in-command shall also submit a copy of it to the DGCA. Such reports shall be submitted as soon as possible and normally within ten days.

3.1.7 Operators shall ensure that pilots-in-command 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.

Note: This information may be made available to the pilot by means of the operations manual or such other means as is considered appropriate.

3.1.8 Operators shall ensure that flight crew members demonstrate the ability to speak and understand the language used for communications as specified in Schedule II of Aircraft Rules, 1937.

3.2 Compliance by a foreign operator with laws, regulations and procedures of a State.

Note: - Refer AIC 5 of 2009

3.3 Safety management

Note. — Annex 19 includes safety management provisions for air operators. Further guidance is contained in the Safety Management Manual (SMM) (Doc 9859).

Note 2. — Guidance on defining safety performance is contained in CAR Section-1, Series "C" Part I which lays down the aviation safety-related processes, procedures and activities for the establishment of Safety Management System (SMS) by an organization and is issued in accordance with rule 133A of the Aircraft Rules, 1937. This CAR also specifies the minimum acceptable requirements for the establishment of SMS in an organization.

3.3.1 Intentionally Left Blank.

3.3.2 All aeroplanes of a certificated take-off mass in excess of 5700 kgs shall be equipped with a means to support a flight data analysis programme.

3.3.3 Intentionally Left Blank.

3.3.4 An operator of an aeroplane of a maximum certificated take-off mass in excess of 5700 kg shall establish and maintain a flight data analysis programme as part of its safety management system.

Note. — An operator may contract the operation of a flight data analysis programme to another party while retaining overall responsibility for the maintenance of such a programme.

3.3.5 Until 22 November 2028, a flight data analysis programme shall contain adequate safeguards to protect the source(s) of the data in accordance with Appendix 3 to Annex 19.

3.3.5 As of 23 November 2028, a flight data analysis programme shall include protections against the disclosure and use of the safety data and safety information as well as protections for related individuals and organizations in accordance with Annex 19.

Note — Guidance on the establishment of flight data analysis programmes is included in CAR Section 5 the Manual on Flight Data Analysis Programmes (FDAP) *(Doc 10000).*

3.3.6 Use of recordings or transcripts of CVR, CARS, Class A AIR and Class A AIRS for purposes other than the investigation of an accident or incident as per Annex 13 shall not be permitted except where the recordings or transcripts:

a) are related to a safety-related event identified in the context of a safety management system; are restricted to the relevant portions of a de-identified transcript of the recording; and are subject to the protections accorded by Annex 19;
b) are sought for use in criminal proceedings not related to an event involving an accident or incident investigation and are subject to the protections accorded by Annex 19; or
c) are used for inspections of flight recorder systems as provided in Appendix 8.

Note.— Provisions on the protection of safety data, safety information and related sources are contained in Appendix 3 to Annex 19. When an investigation under Annex 13 is instituted, investigation records are subject to the protections accorded by Annex 13.

3.3.7 Use of recordings or transcripts of FDR, ADRS as well as Class B and Class C AIR and AIRS for purposes other than the investigation of an accident or incident as per Annex 13 shall not be allowed, except where the recordings or transcripts are subject to the protections accorded by Annex 19 and:

a) are used by the operator for airworthiness or maintenance purposes;
b) are used by the operator in the operation of a flight data analysis programme required in this Annex;
c) are sought for use in proceedings not related to an event involving an accident or incident investigation;

d) are de-identified; or

e) are disclosed under secure procedures.

Note.— Provisions on the protection of safety data, safety information and related sources are contained in Appendix 3 to Annex 19.

3.38 Operator shall establish a flight safety documents system, for the use and guidance of operational personnel, as part of its safety management system.

Note.— Guidance on the development and organization of a flight safety documents system is provided in Attachment E.

3.4 Use of psychoactive substances

The operator shall adhere to the provisions concerning the use of psychoactive substances contained in Rule 24 of the Aircraft Rules, 1937.

3.5 AIRCRAFT TRACKING

3.5.1 The operator shall establish an aircraft tracking capability to track aeroplanes throughout its area of operations.

Note.— Guidance on aircraft tracking capabilities is contained in DGCA Operations Circular 07 of 2018 and the Aircraft Tracking Implementation Guidelines (Cir 347).

3.5.2 The operator should track the position of an aeroplane through automated reporting at least every 15 minutes for the portion(s) of the in-flight operation(s) under the following conditions:
a) the aeroplane has a maximum certificated take-off mass of over 27,000 kg & seating capacity greater than 19; and

b) where an ATS unit obtains aeroplane position information at greater than 15 minute intervals.

Note.— See CAR Section 9, Series E, Part I, for coordination between the operator and air traffic services providers regarding position report messages.

3.5.3 The operator shall track the position of an aeroplane through automated reporting at least every 15 minutes for the portion(s) of the in-flight operation(s) that is planned in an oceanic area(s) under the following conditions:

a) the aeroplane has a maximum certificated take-off mass of over 45,500 kg and a seating capacity greater than 19; and

b) where an ATS unit obtains aeroplane position information at greater than 15 minute intervals.

Note 1.— Oceanic area, for the purpose of aircraft tracking, is the airspace which overlies waters outside the territory of a State.

Note 2.— See CAR Section 9, Series E, Part I, for coordination between the operator and air traffic services providers regarding position report messages.

Note 3.— Operational procedures for monitoring the aircraft tracking information shall be as per PANS-OPS, Volume III, Section 10.

3.5.4 Notwithstanding the provisions in 3.5.2 and 3.5.3, the DGCA may, based on the results of an approved risk assessment process implemented by the operator, allow for variations to automated reporting intervals. The process shall demonstrate how risks to the operation, resulting from such variations can be managed and shall include at least the following:

a) capability of the operator's operational control systems and processes, including those for contacting ATS units;
b) overall capability of the aeroplane and its systems;
c) available means to determine the position of, and communicate with, the aeroplane;
d) frequency and duration of gaps in automated reporting;
e) human factors consequences resulting from changes to flight crew procedures; and
f) specific mitigation measures and contingency procedures.

Note. — Guidance on development, implementation and approval of the risk assessment process which allows for variations to the need for automatic reporting and the required interval, including variation examples, is contained in the DGCA Operations Circular 07 of 2018 and the Aircraft Tracking Implementation Guidelines (Cir 347).

3.5.5 The operator shall establish procedures, approved by the DGCA, for the retention of aircraft tracking data to assist SAR in determining the last known position of the aircraft.

Note.— Refer to 4.2.1.3.1 for operator responsibilities when using third parties for the conduct of aircraft tracking under 3.5.

3.6 PROTECTION OF RECORDINGS AND TRANSCRIPTS

Applicable as of 23 November 2028.

3.6.1 The use of recordings or transcripts of CVR, CARS, Class A AIR and Class A AIRS shall not be allowed except where the recordings or transcripts are:

a) used in the investigation of an accident or incident instituted under Annex 13;
b) used in the assessment of a safety-related event identified in the context of a safety management system, in which case such use is restricted to the relevant portions of a de-identified transcript of the recording; and are subject to the protections accorded by Annex 19;
c) sought for use in criminal proceedings not related to an event involving an Annex 13 accident or incident investigation in which case such use is restricted to the relevant portions disclosed under authoritative safeguards; or
d) used for inspections of flight recorder systems as provided in Appendix 8.

Note 1.— *When an investigation under Annex 13 is instituted, the protection accorded to accident and investigation records, including recordings or transcripts of CVR, CARS, Class A AIR and Class A AIRS, is determined in accordance with Annex 13. Provisions on the protection of safety data and safety information collected for purposes of maintaining or improving safety as well as related sources are contained in Annex 19.*

Note 2.— *Authoritative safeguards include legal limitations or restrictions such as protective orders, closed proceedings, in-camera review, and de-identification of data for the use or disclosure of safety information in criminal proceedings.*

3.6.2 The use of recordings or transcripts of FDR, ADRS as well as Class B and Class C AIR and AIRS shall not be allowed, except where the recordings or transcripts are:
a) used in the investigation of an accident or incident instituted under Annex 13;
b) used by the operator for airworthiness or maintenance purposes;
c) used by the operator in the operation of a flight data analysis programme required by Annex 6 Part I; or
d) sought for use in proceedings not related to an event involving an accident or incident investigation

Note.— *Provisions on the protection of safety data and safety information collected for the purposes of maintaining or improving safety as well as related sources are contained in Annex 19*

4. FLIGHT OPERATIONS

4. 1 OPERATING CONSIDERATIONS AND FACILITIES

4.1 .1 The operator shall ensure that a flight will not be commenced unless it has been ascertained by every reasonable means available that the ground and/or water facilities available and directly required on such flight, for the safe operation of the aeroplane and the protection of the passengers, are adequate for the type of operation under which the flight is to be conducted and are adequately operated for this purpose

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

4.1.2 The operator shall ensure that a flight will not commence or continue as planned unless it has been ascertained by every reasonable means available that the airspace containing the intended route from aerodrome of departure to aerodrome of arrival, including the intended take-off, destination and en-route alternate aerodromes, can be safely used for the planned operation. When intending to operate over or near conflict zones a risk assessment shall be conducted and appropriate risk mitigation measures taken to ensure a safe flight.

Note 1.- "Reasonable means" in this Standard is intended to denote the use, at the point of departure or while the aircraft is in flight, or information available to the operator either through official information published by the aeronautical information services or readily obtainable from other sources.

Note 2.- Guidance on safety risk assessments is contained in DGCA SSP Circular 01 of 2012 and Safety Management Manual (SMM) (Doc 9859)

Note 3.- The Risk Assessment Manual for Civil Aircraft Operations Over or Near Conflict Zones *(Doc 10084) contains further guidance on risk assessment for air operator when flying over or near conflict zones.*

4.1.3 The operator shall ensure that any inadequacy of facilities observed in the course of operations is reported to the authority responsible for them, without undue delay.

4.1.4 Subject to their published conditions of use, aerodromes and their facilities are kept continuously available for flight operations during their published hours of operations, irrespective of weather conditions.

4.1.5 An operator shall, as part of its safety management system, assess the level of rescue and firefighting service (RFFS) protection available at any aerodrome intended to be specified in the operational flight plan in order to ensure that an acceptable level of protection is available for the aeroplane intended to be used.

4.1.6 Information related to the level of RFFS protection that is deemed acceptable by the operator shall be contained in the operations manual.

Note 1: - Attachment H contains guidance on assessing an acceptable level of RFFS protection at aerodromes.

Note 2:- It is not intended that this guidance limit or regulate the operation of an aerodrome. The assessment performed by the operator does not in any way affect the RFFS requirements of CAR Section 4 Series B Part I, for aerodromes.

4.2 Operational Certification and Supervision

4.2.1 Air Operator Certificate

4.2.1.1 An operator shall not engage in commercial air transport operations unless in possession of a valid Air Operator Certificate issued by DGCA.

4.2.1.2 The air operator certificate shall authorise the operator to conduct commercial air transport operations in accordance with the operation specifications.

Note: *Provisions for the content of the air operator certificate and its associated operations specifications are contained in 4.2.1.5 and 4.2.1.6*

4.2.1.3 The issue of an air operator certificate shall be dependent upon the operator demonstrating an adequate organization, method of control and supervision of flight operations, training programme as well as ground handling and maintenance arrangements consistent with the nature and extent of the operations specified.

Note - *Guidance for issuance of air operator's* certificate *is given in CAP 3100 and CAP 3300.*

4.2.1.3.1 An operator shall develop policies and procedures for third parties that perform work on its behalf.

4.2.1.4 The continued validity of an air operator certificate shall depend upon the operator maintaining the requirements of 4.2.1.3 under the supervision of DGCA.

4.2.1.5 The air operator certificate in Attachment C shall contain at least the following information.

a) The State of the operator and the issuing authority;

b) The air operator certificate number and its expiration date;

c) The operator name, trading name (if different) and address of the principal place of business;

d) The date of issue and the name, signature and title of the authority;

e) The location, in a controlled document carried on board, where the contact details of operational management can be found.

4.2.1.6 The operations specifications associated with the air operator certificate shall contain at least the information listed in Appendix 6 and shall follow the layout of Appendix 6 for each aircraft model.

Note - Appendix 6 contains additional information that may be listed in the operations specifications associated with the air operator certificate.

4.2.1.7 Air operator certificates and their associated operations specifications first issued from 20 November 2008 shall follow the layouts of Appendix 6.

4.2.1.8 The DGCA shall establish a system for both the certification and the continued surveillance of the operator to ensure that the required standards of operations established in 4.2 are maintained.

4.2.2 Surveillance of operations by a foreign operator

Note: - Refer AIC 5 of 2009

4.2.3 Operations Manual

4.2.3.1 The operator shall provide, for the use and guidance of operations personnel concerned, an operations manual in accordance with CAR Section 8 Series O Part VII. The operations manual shall be amended or revised as is necessary to ensure that the information contained therein is kept up to date. All such amendments or revisions shall be issued to all personnel that are required to use this manual.

4.2.3.2 The operations manual including any amendments/ revisions shall be submitted to DGCA for acceptance/ approval. Amendments/ revisions to the Operations Manual adopted as 'Temporary Revisions' shall be incorporated in the Operations Manual during the next revision cycle. The operator shall incorporate in the operations manual such mandatory material as DGCA may require.

Note 1.— Requirements for the organization and content of an operations manual are provided in CAR Section 8 Series O Part VII.

Note 2.— Specific items in the operations manual require the approval of the DGCA in accordance with para 4.2.8, 6.1.3, 9.3.1, 12.4 and 13.4.1.

4.2.4 Operating Instructions – General

4.2.4.2 The operator shall ensure that all operations personnel are properly instructed in their particular duties and responsibilities and the relationship of such duties to the operation as a whole.

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

4.2.4.3.1 has been duly authorized by the operator,

4.2.4.3.2 is fully competent to taxi the aeroplane,

4.2.4.3.3 is qualified to use the radio telephone or a person qualified to use the radio telephone is on board; and

4.2.4.3.4 has received instruction from a competent person in respect of aerodrome layout, routes, signs, marking, lights, air traffic control (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: - Requirements for issue of taxi Permit are given in CAR Section 2, Series 'X' Part VIII.

4.2.4.4 It is recommended that the operator should issue operating instructions and provide information on aeroplane climb performance with all engines operating to enable the pilot-in-command to determine the climb gradient that can be achieved during the departure phase for the existing take-off conditions and intended take-off technique. This information should be included in the operations manual.

4.2.5 In-flight simulation of emergency situations

The operator shall ensure that when passengers or cargo are being carried, no emergency or abnormal situations shall be simulated in flight.

4.2.6 Checklists

The checklists provided in accordance with 6.1.4 shall be used by flight crew prior to, during and after all phases of operations, and in emergency, to ensure compliance with the operating procedures contained in the aircraft operating manual and the flight manual or other documents associated with the certificate of airworthiness and otherwise in the operations manual, are followed. The design and utilization of checklists shall observe Human Factors principles.

Note- *Guidance material on the application of human factors principles can be found in the Human Factor Training Manual (ICAO Doc 9683)*

4.2.7 Minimum flight Altitudes

4.2.7.2 The operator may establish minimum flight altitudes for those routes flown for which minimum flight altitudes have been established by the State flown over or the responsible State, provided that they shall not be less than those established by that State. In India, the minimum flight altitude as established by the Airports Authority of India shall apply.

4.2.7.3 An operator shall specify the method by which it is intended to determine minimum flight altitudes for operations conducted over routes for which minimum flight altitudes have not been established by the State flown over, or the responsible State, and shall include this method in the Operations Manual. The minimum flight altitudes determined in accordance with the above method shall not be lower than specified in Section 9 Series 'R'Part I.

4.2.7.4 The method for establishing the minimum flight altitudes shall require approval of DGCA.

4.2.7.5 DGCA may approve such method after considering the probable effects of the following factors on the safety of the operation in question:

4.2.7.5.1 The accuracy and reliability with which the position of the aeroplane can be determined;

4.2.7.5.2 The inaccuracies in the indications of the altimeters used;

4.2.7.5.3 The characteristics of the terrain (sudden change in the elevation);

4.2.7.5.4 The probability of encountering unfavourable meteorological condition (e.g. severe turbulence and descending air currents);

4.2.7.5.5 Possible inaccuracies in aeronautical charts; and

4.2.7.5.6 Airspace restriction

4.2.8 Aerodrome Operating Minima

4.2.8.2 The operator shall establish aerodrome operating minima for each aerodrome to be used in operations and the method of determination of such minima to be approved by DGCA. Such minima shall not be lower than any that may be established for such aerodromes by the State of the Aerodrome except when specifically approved by that State.

This Standard does not require the State of the Aerodrome to establish aerodrome operating minima.

4.2.8.1.1 DGCA shall authorize operational credit(s) for operations with advanced aircraft. Where the operational credit relates to low visibility operations the DGCA shall issue a specific approval. Such authorizations shall not affect the classification of the instrument approach procedure.

Note 1. — Operational credit includes:

a) For the purposes of an approach ban (4.4.1.2), a or dispatch considerations, a minimum below the aerodrome operating minima;

b) Reducing or satisfying the visibility requirements; or

c) Requiring fewer ground facilities as compensated for by airborne capabilities.

Note 2.— Guidance on operational credit and how to express the operational credit in the Operations Specifications contained in the Manual of All- Weather Operations *(Doc 9365).*

Note 3. — Information regarding a HUD or equivalent displays, including references to RTCA and EUROCAE documents, is contained in the Manual of All-Weather Operations *(Doc 9365).*

4.2.8.1.2 When issuing a specific approval for the operational credit, the State of the Operator shall ensure that:

a) the aeroplane meets the appropriate airworthiness certification requirements;

b) the information necessary to support effective crew tasks for the operation is appropriately available to both pilots where the number of flight crew members specified in the operations manual is more than one;

c) the operator has carried out a safety risk assessment of the operations supported by the equipment;

d) the operator has established and documented normal and abnormal procedures and MEL;

e) the operator has established a training programme for the flight crew members and relevant personnel involved in the flight preparation;

f) the operator has established a system for data collection, evaluation and trend monitoring for low visibility operations for which there is an operational credit; and

g) the operator has instituted appropriate procedures in respect of continuing airworthiness (maintenance and repair) practices and programmes.

Note 1.— Guidance on safety risk assessments is contained in the DGCA SSP Circular 01 of 2012 and the Safety Management Manual (SMM) (Doc 9859).

Note 2.— Guidance on operational approvals is contained in the Manual Of All-Weather Operations (Doc 9365).

4.2.8.1.3 For operations with operational credit with minima above those related to low visibility operations, the State of the Operator shall establish criteria for the safe operation of the aeroplane.

Note.— Guidance on operational credit for operations with minima above those related to low visibility operations is contained in the Manual of All-Weather Operations (Doc 9365).

4.2.8.3 While establishing the aerodrome operating minima which will apply to any particular operation, the operator shall take full account of:

4.2.8.3.1 The type, performance and handling characteristics of the aeroplane and any conditions or limitations stated in the flight manual;

4.2.8.3.2 The composition of the flight crew, their competence and experience;

4.2.8.3.3 The dimensions and characteristics of the runways which may be selected for use;

4.2.8.3.4 The adequacy and performance of the available visual and non- visual ground aids;

4.2.8.3.5 The equipment available on the aeroplane for the purpose of navigation, acquisition of visual references and/or control of the flightpath during the approach, landing and the missed approach;

4.2.8.3.6 The obstacles in the approach and missed approach areas and the obstacle clearance altitude / height for the instrument approach procedures;

4.2.8.3.7 The means used to determine and report meteorological conditions;

4.2.8.3.8 The obstacles in the climb-out areas and necessary clearance margins.

4.2.8.3.9 The conditions prescribed in the operations specifications; and

4.2.8.3.10 Any minima that may be promulgated by the State of the Aerodrome.

Note. — *Guidance on the establishment of aerodrome operating minima is contained in CAR Section 8 Series C Part I and the Manual of All-Weather Operations (ICAO Doc 9365).*

4.2.8.4 Instrument approach operations shall be classified based on the designed lowest operating minima below which an approach operation shall only be continued with the required visual reference as follows:

4.2.8.4.1 Type A: a minimum descent height or decision height at or above 75 m (250 ft); and

4.2.8.4.2 Type B: a decision height below 75 m (250 ft). Type B instrument approach operations are categorized as:

4.2.8.4.2.1 Category I (CAT I): a decision height not lower than 60 m (200 ft) and with either a visibility not less than 800 m or a runway visual range not less than 550 m;

4.2.8.4.2.2 Category II (CAT II): a decision height lower than 60 m (200 ft), but not lower than 30 m (100 ft) and a runway visual range not less than 300 m; and

4.2.8.4.2.3 Category III (CAT III): a decision height lower than 30 m (100 ft) or no decision height and a runway visual range less than 300m or no runway visual range limitations;

Note 1.— Where decision height (DH) and runway visual range (RVR) fall into different categories of operation, the instrument approach 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 III but with an RVR in the range of CAT III would be considered a CAT III 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). This does not apply if the RVR and/or DH has been approved as operational credits.

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 operation the required visual reference is the runway environment.

Note 3.— Guidance on approach classification as it relates to instrument approach operations, procedures, runways and navigation systems is contained in the All Weather Operations Manual (Doc 9365).

4.2.8.5 DGCA shall issue a specific approval for instrument approach operations in low visibility which shall only be conducted when RVR information is provided.

Note: *Guidance on low visibility operations is contained in the manual of All-weather operations (Doc 9365).*

4.2.8.6 For take-off in low visibility DGCA shall issue a specific approval for the minimum take- off RVR.

Note: In general, visibility for take-off is defined in terms of RVR. An equivalent horizontal visibility may also be used.

4.2.8.7 For instrument approach operations, aerodrome operating minima below 800 m visibility should not be authorized unless RVR information is provided.

Note.- Refer CAR Section 8 Series C Part I

4.2.8.8 The operating minima for 2D instrument approach operations using instrument approach procedures shall be determined by establishing a minimum descent altitude (MDA) or minimum descent height (MDH), minimum visibility and, if necessary, cloud conditions.

Note. — For guidance on applying a continuous descent final approach (CDFA) flight *technique on on-precision approach procedures refer to PANS-OPS (Doc 8168), Volume I, Part II, Section 5.*

4.2.8.9 The operating minima for 3D instrument approach operations using instrument approach procedures shall be determined by establishing a decision altitude (DA) or decision height (DH) and the minimum visibility or RVR.

4.2.9 Threshold crossing height for 3D instrument approach operations

An operator shall establish operational procedures designed to ensure that an aeroplane being used to conduct 3 D instrument approach operations crosses the threshold by a safe margin, with the aeroplane in the landing configuration and attitude.

4.2.10 Fuel and Oil Records

4.2.10.2 The operator shall maintain fuel records to enable DGCA to ascertain that for each flight, the requirements of para 4.3.6 and 4.3.7.1 of this CAR have been complied with.

4.2.10.3 An operator shall maintain oil records to enable DGCA to ascertain that trends for oil consumption are such that an aeroplane has sufficient oil to complete each flight.

4.2.10.4 Fuel and oil records shall be retained by the operator for a period of six months.

4.2.11 Crew

4.2.11.2 *Pilot-in-command:* For each flight, the operator shall designate one pilot to act as pilot-in-command.

4.2.11.3 For each flight of an aeroplane above 49000 ft (15000 m), the operator shall maintain records so that the total cosmic radiation dose received by each crew member over a period of 12 consecutive months can be determined.

Note.— Guidance on the maintenance of cumulative radiation records is given in Circular 126 — Guidance Material on SST Aircraft Operations.

4.2.12 Passengers

4.2.12.2 An operator shall ensure that passengers are made familiar with the location and use of:

4.2.12.2.1.1 Seat belts;
4.2.12.2.1.2 Emergency exits;
4.2.12.2.1.3 Life jackets, if the carriage of life jackets is prescribed;
4.2.12.2.1.4 Oxygen dispensing equipment, if the provision of oxygen for the use of passengers is prescribed; and
4.2.12.2.1.5 Other emergency equipment provided for individual use including passenger emergency briefing card.

4.2.12.3 The operator shall inform the passengers of the location and general manner of use of the principal emergency equipment carried for collective use.

4.2.12.4 The operator shall ensure that in an emergency during flight, passengers are instructed in such emergency action as may be appropriate to the circumstances.

4.2.12.5 The operator shall ensure that during take-off and landing and whenever, by reason of turbulence or any emergency occurring during flight, the precaution is considered necessary, all passengers on board an aeroplane shall be secured in their seats by means of the seat belts or harnesses provided.

4.3 Flight Preparation

4.3.1 A flight shall not be commenced until flight preparation forms have been completed certifying that the pilot in command is satisfied that:

a) The aeroplane is airworthy and the appropriate certificates (i.e. airworthiness, registration) are on board the aeroplane;

b) The instruments and equipment prescribed in Para 6 of this CAR for the particular type of operation are to be undertaken are installed and are sufficient forthe flight.

c) A maintenance release as prescribed in 8.7 has been issued in respect of the aeroplane;

d) The mass of the aeroplane and centre of gravity location are such that flight can be conducted safely, taking in to account the flight condition expected;

e) Any load carried is properly distributed and safely secured;

f) A check has been completed indicating that the operating limitations given in para 5 of this CAR can be complied with for the flight to be undertaken; and

g) The Standards of 4.3.3 relating to operational flight planning have been complied with.

4.3.2 Completed pilot acceptance report or equivalent document shall be kept by the operator for a period of three months.

4.3.3 Operational Flight Planning

4.3.3.1 An operational flight plan shall be completed every intended flight. The operational flight plan shall be approved and signed by the pilot-in- command and, where applicable, signed by the flight operations officer/flight dispatcher, and a copy shall be filed with the operator or a designated agent, or, if these procedures are not possible, it shall be left with the aerodrome authority or on record in a suitable place at the point of departure.

Note: The duties of the flight operations officer/flight dispatcher are contained in 4.6

4.3.3.2 The operations manual must describe the content and use of the operational flight plan.

4.3.4 Alternate Aerodromes

4.3.4.1 Take-off alternate aerodrome

4.3.4.1.1 A take-off alternate aerodrome shall be selected and specified in the operational flight plan if either the meteorological conditions at the aerodrome of departure are below the operator's established aerodrome landing minima for that operation or if it would not be possible to return to the aerodrome of departure for other reasons.

4.3.4.1.2 The take-off alternate aerodrome shall be located within the following flight time from the aerodrome of departure:

a) for aeroplanes with two engines, one hour of flight time at a one- engine- inoperative cruising speed, determined from the aircraft operating manual, calculated in ISA and still-air conditions using the actual take-off mass; or

b) for aeroplanes with three or more engines., two hours of flight time at an all- engine operating cruising speed, determined from the aircraft operating manual, calculated in ISA and still-air conditions using the actual take-off mass; or

c) for aeroplanes engaged in extended diversion time operations (EDTO) where an

alternate aerodrome meeting the distance criteria of a) or b) is not available, the first available alternate aerodrome located within the distance of the operator's specified maximum diversion time considering the actual take-off mass.

4.3.4.1.3 For an aerodrome to be selected as a take-off alternate the available information shall indicate that, at the estimated time of use, the conditions will be at or above the operator's established aerodrome operating minima for that operation.

4.3.4.2 En-route alternate aerodromes

En-route alternate aerodromes, required by 4.7 for extended diversion time operations by aeroplanes with two turbine engines, shall be selected and specified in the operational and Air Traffic Services (ATS) flight plans.

4.3.4.3 Destination alternate aerodromes

4.3.4.3.1 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 operational and ATS flight plans, unless:

a) The duration of the flight from the departure aerodrome, or from the point of in- flight re-planning to the destination aerodrome is such that, taking into account all meteorological conditions and operational information relevant to the flight, at the estimated time of use, a reasonable certainty exists that:

1) The approach and landing may be made under visual meteorological conditions; and

2) Separate runways are usable at the estimated time of use of the destination aerodrome with at least one runway having an operational instrument approach procedure; or

b) The aerodrome is isolated. Operations into isolated aerodromes do not require the selection of a destination alternate aerodrome(s) and shall be planned in accordance with 4.3.6.3 d) 4);

1) For each flight into an isolated aerodrome a point of no return shall be determined; and

2) A flight to be conducted to an isolated aerodrome shall not be continued past the point of no return unless a current assessment of meteorological conditions, traffic, and other operational conditions indicate that a safe landing can be made at the estimated time of use.

Note 1. — Separate runways are two or more runways at the same aerodrome configured such that if one runway is closed, operations to the other runway(s) can be conducted.

Note 2. — Guidance on planning operations to isolated aerodromes is contained in the Flight Planning and Fuel Management Manual *(Doc 9976).*

4.3.4.3.2 Two destination alternate aerodromes shall be selected and specified in the operational and ATS flight plans when, for the destination aerodrome:

a) Meteorological conditions at the estimated time of use will be below the operator's established aerodrome operating minima for that operation; or

b) Meteorological information is not available.

4.3.4.4 Notwithstanding the provisions in 4.3.4.1, 4.3.4.2, and 4.3.4.3; DGCA may, based on the results of a specific safety risk assessment conducted by the operator which demonstrates how an equivalent level of safety will be maintained, approve operational variations to alternate aerodrome selection criteria. The specific safety risk assessment shall include at least the:

a) Capabilities of the operator;
b) Overall capability of the aeroplane and its systems;
c) Available aerodrome technologies, capabilities and infrastructure;
d) Quality and reliability of meteorological information;
e) Identified hazards and safety risks associated with each alternate aerodrome variation; and
f) Specific mitigation measures.

Note.— Guidance on performing a safety risk assessment and on determining variations including examples of variations, are contained in the Flight Planning and Fuel Management Manual*(Doc 9976) and the* Safety Management Manual (SMM) *(Doc 9859).*

4.3.5 **Meteorological conditions**

4.3.5.1 A flight to be conducted in accordance with the V F R shall not be commenced unless 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 VFR will, at the appropriate time, be such as to enable compliance with these rules.

4.3.5.2 A flight to be conducted in accordance with the instrument flight rules;

a) shall not take off from the departure aerodrome unless the meteorological conditions, at the time of use, are at or above the operator's established aerodrome operating minima for that operation; and

b) shall not take off or continue beyond the point of in-flight re-planning unless at the aerodrome of intended landing or at each alternate aerodrome to be selected in compliance with 4.3.4, current meteorological reports or a combination of current reports and forecasts indicate that the meteorological conditions will be, at the estimated time of use, at or above the operator's established aerodrome operating minima for that operation.

4.3.5.3 To ensure that an adequate margin of safety is observed in determining whether or not an approach and landing can be safely carried out at each alternate aerodrome, the operator shall specify appropriate incremental values for height of cloud base and visibility, to be added to the operator's established aerodrome operating minima in accordance with CAR Section 8 Series 'C' Part I.

Note.— Guidance on the selection of these incremental values is contained in the Flight Planning and Fuel Management (FPFM) Manual (Doc 9976).

4.3.5.4 DGCA shall approve a margin of time established by the operator for the estimated time of use of an aerodrome.

Note. — Guidance on establishing an appropriate margin of time for the estimated time of use of an aerodrome is contained in the Flight Planning and Fuel Management Manual *(Doc 9976).*

4.3.5.5 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.

4.3.5.6 A flight to be planned or expected to operate in suspected or known ground icing conditions shall not take off unless the aeroplane has been inspected for icing and, if necessary, has been given appropriate de- icing /anti icing treatment. Accumulation of ice or other naturally occurring contaminants shall be removed so that the aeroplane is kept in an airworthy condition prior to take off.

Note: Guidance material is given in the Manual of Aircraft Ground De- icing/Anti-icing Operations (ICAO Doc 9640).

4.3.6 Fuel requirements

4.3.6.1 An aeroplane shall carry a sufficient amount of usable fuel, to complete the planned flight safely and to allow for deviations from the planned operation.

4.3.6.2 The amount of usable fuel to be carried shall, as a minimum, be based on the following data:

a) 1) current aeroplane-specific data derived from a fuel consumption monitoring system, if available; or
2) If current aeroplane-specific data is not available, data provided by the aeroplane manufacturer; and

b) The operating conditions for the planned flight including:

1) Anticipated aeroplane mass;
2) NOTAMs;
3) Current meteorological reports or a combination of current reports and forecasts;
4) Air traffic services procedures, restrictions and anticipated delays; and
5) The effects of deferred maintenance items and/or configuration deviations.

4.3.6.3 The pre-flight calculation of usable fuel required shall include:

a) *Taxi fuel*, which shall be the amount of fuel expected to be consumed before take-off; taking into account local conditions at the departure aerodrome and auxiliary power unit (APU) fuel consumption;

b) trip fuel, which shall be the amount of fuel required to enable the aeroplane to fly from take-off or the point of in-flight re-planning until landing at the destination aerodrome taking into account the operating conditions of 4.3.6.2 b);

c) Contingency fuel, which shall be the amount of fuel required to compensate for unforeseen factors. It shall be 5 per cent of the planned trip fuel or of the fuel required from the point of inflight re-planning based on the consumption rate used to plan the trip fuel but in any case shall not be lower than the amount required to fly for five minutes at holding speed at 450 m (1500 ft) above the destination aerodrome in standard conditions;

Note.— Unforeseen factors are those which could have an influence on the fuel consumption to the destination aerodrome, such as deviations of an individual aeroplane from the expected

fuel consumption data, deviations from forecast meteorological conditions, extended delays and deviations from planned routings and/or cruising levels.

d) *Destination alternate fuel*, which shall be:

1) Where a destination alternate aerodrome is required, the amount of fuel required to enable the aeroplane to

i) Perform a missed approach at the destination aerodrome;
ii) Climb to the expected cruising altitude;
iii) Fly the expected routing;
iv) Descend to the point where the expected approach is initiated; and
v) Conduct the approach and landing at the destination alternate aerodrome; or

2) where two destination alternate aerodromes are required, the amount of fuel, as calculated in 4.3.6.3 d) 1), required to enable the aeroplane to proceed to the destination alternate aerodrome which requires the greater amount of alternate fuel; or

3) where a flight is operated without a destination alternate aerodrome, the amount of fuel required to enable the aeroplane to fly for 15 minutes at holding speed at 450 m (1500 ft) above destination aerodrome elevation in standard conditions; or

4) Where the aerodrome of intended landing is an isolated aerodrome:

i) for a reciprocating engine aeroplane, the amount of fuel required to fly for 45 minutes plus 15 per cent of the flight time planned to be spent at cruising level, including final reserve fuel, or two hours, whichever is less; or
ii) For a turbine engine aeroplane, the amount of fuel required to fly for two hours at normal cruise consumption above the destination aerodrome, including final reserve fuel;

e) *Final reserve fuel*, which shall be the amount of fuel calculated using the estimated mass on arrival at the destination alternate aerodrome or the destination aerodrome, when no destination alternate aerodrome is required:

1) for a reciprocating engine aeroplane, the amount of fuel required to fly for 45 minutes, under minimum speed and 1500 ft above aerodrome elevation in standard conditions; or

2) for a turbine engine aeroplane, the amount of fuel required to fly for 30 minutes at holding speed at 450 m (1500 ft) above aerodrome elevation in standard conditions;

f) *Additional fuel*, which shall be the supplementary amount of fuel required if the minimum fuel calculated in accordance with 4.3.6.3 b), c), d) and e) is not sufficient to**:**

1) allow the aeroplane to descend as necessary and proceed to an alternate aerodrome in the event of engine failure or loss of pressurization, whichever requires the greater amount of fuel based on the assumption that such a failure occurs at the most critical point along the route;

i) Fly for 15 minutes at holding speed at 450 m (1500 ft) above aerodrome elevation in standard conditions; and
ii) Make an approach and landing;

2) allow an aeroplane engaged in EDTO to comply with the EDTO critical fuel scenario as established by DGCA;

3) Meet additional requirements not covered above;

Note 1. — Fuel planning for a failure that occurs at the most critical point along a route (4.3.6.3 f) 1)) may place the aeroplane in a fuel emergency situation based on 4.3.7.2.

Note 2.—Guidance on EDTO critical fuel scenarios are contained in CAR Section 8 Series S Part 1 and the Extended Diversion Time Operations Manual (Doc 10085)

g) *Discretionary fuel*, which shall be the extra amount of fuel to be carried at the discretion of the pilot-in-command.

4.3.6.4 It is recommended that operators determine one final reserve fuel value for each aeroplane type and variant in their fleet rounded up to an easily recalled figure.

4.3.6.5 A flight shall not commence unless the usable fuel on board meets the requirements in 4.3.6.3 a), b), c), d), e) and f) if required and shall not continue from the point of in- flight re planning unless the usable fuel on board meets the requirements in 4.3.6.3 b),c), d) e) and f) if required.

4.3.6.6 Notwithstanding the provisions in 4.3.6.3 a), b), c), d), and f); DGCA may, based on the results of a specific safety risk assessment conducted by the operator which demonstrates how an equivalent level of safety will be maintained, approve variations to the pre- flight fuel

calculation of taxi fuel, trip fuel, contingency fuel, destination alternate fuel, and additional fuel. The specific safety risk assessment shall include at least the:

a) Flight fuel calculations;

b) Capabilities of the operator to include:

i) A data-driven method that includes a fuel consumption monitoring programme; and/or
ii) The advanced use of alternate aerodromes; and

c) Specific mitigation measures.

Note.— Guidance for the specific safety risk assessment, fuel consumption monitoring programmes and the advanced use of alternate aerodromes is contained in the Flight Planning and Fuel Management Manual *(Doc 9976).*

4.3.6.7 The use of fuel after flight commencement for purposes other than originally intended during pre-flight planning shall require a re-analysis and, if applicable, adjustment of the planned operation.

Note.— Guidance on procedures for in-flight fuel management including re- analysis, adjustment and/or re-planning considerations when a flight begins to consume contingency fuel before take-off is contained in the Flight Planning and Fuel Management Manual *(Doc 9976).*

4.3.7 In-flight fuel management

4.3.7.1 An operator shall establish policies and procedures, approved by DGCA, to ensure that in- flight fuel checks and fuel management are performed.

4.3.7.2 The pilot-in-command shall continually ensure that the amount of usable fuel remaining on board is not less than the fuel required to proceed to an aerodrome where a safe landing can be made with the planned final reserve fuel remaining upon landing.

Note. — The protection of final reserve fuel is intended to ensure a safe landing at any aerodrome when unforeseen occurrences may not permit safe completion of an operation as originally planned. Guidance on flight planning including the circumstances that may require re-analysis, adjustment and/or re-planning of the planned operation before take- off or en-route, is contained in the Flight Planning and Fuel Management Manual *(Doc 9976).*

4.3.7.2.1 The pilot-in-command shall request delay information from ATC when unanticipated circumstances may result in landing at the destination aerodrome with less than the final

reserve fuel plus any fuel required to proceed to an alternate aerodrome or the fuel required to operate to an isolated aerodrome.

4.3.7.2.2 The pilot-in-command shall advise ATC of a minimum fuel state by declaring MINIMUM FUEL when, having committed to land at a specific aerodrome, the pilot calculates that any change to the existing clearance to that aerodrome may result in landing with less than planned final reserve fuel.

Note 1. — The declaration of MINIMUM FUEL informs ATC that all planned aerodrome options have been reduced to a specific aerodrome of intended landing and any change to the existing clearance may result in landing with less than planned final reserve fuel. This is not an emergency situation but an indication that an emergency situation is possible should any additional delay occur.

Note 2. — Guidance on declaring minimum fuel is contained in the Flight Planning and Fuel Management Manual *(Doc 9976).*

4.3.7.2.3 The pilot-in-command shall declare a situation of fuel emergency by broadcasting MAYDAY MAYDAY MAYDAY *FUEL*, when the calculated usable fuel predicted to be available upon landing at the nearest aerodrome where a safe landing can be made is less than the planned final reserve fuel.

Note 1. — the planned final reserve fuel refers to the value calculated in 4.3.6.3 e) 1) or 2) and is the minimum amount of fuel required upon landing at any aerodrome.

Note 2.— The words "MAYDAY FUEL" describe the nature of the distress conditions as required in CAR Section 9 Series D Part III, 5.3.2.1.1, b) 3.

Note 3.— Guidance on procedures for in-flight fuel management are contained in the Flight Planning and Fuel Management Manual *(Doc 9976).*

4.3.8 Refuelling with passengers on board

4.3.8.1 An aeroplane shall not be refuelled when passengers are embarking, on board or disembarking unless it is properly attended by qualified personnel ready to initiate and direct an evacuation of the aeroplane by the most practical and expeditious means available.

4.3.8.2 When refuelling with passengers embarking, on board or disembarking, two way communication shall be maintained by the aeroplane's inter- communication system or other suitable means between the ground crew supervising the refuelling and the qualified personnel on board the aeroplane.

Note 1.-- The provisions of 4.3.8.1 do not necessarily require the deployment of integral aeroplane stairs or the opening emergency exits as a prerequisite to refuelling.

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

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

4.3.8.3 The operator shall also adhere to all precautions laid down in Rule 25 A of the Aircraft Rule 1937 regarding fuelling of aeroplane.

4.3.9 Oxygen Supply

Note.-- Approximate altitude in the standard atmosphere corresponding to the value of absolute pressure used in the text are as follows:

Absolute pressure	Metres	Feet
700 hPa	*3 000*	*10 000*
620 hPa	*4 000*	*13 000*
376 hPa	*7 600*	*25 000*

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

a) all crew members and 10% passengers for any period in excess of 30 minutes that the pressure in the compartment occupied by them will be between 700 hPa and620 hPa; and

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

4.3.9.2 A flight to be operated with a pressurized aeroplane shall not be commenced unless a sufficient quantity of stored breathing oxygen is carried to supply all the crew members and passengers as is appropriate to the circumstances of the flight being undertaken, in the event of loss of pressurisation, 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 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.

4.3.10 Time capability of cargo compartment fire suppression systems

4.3.10.1 All flights should be planned so that the diversion time to an aerodrome where a safe landing could be made does not exceed the cargo compartment fire suppression time capability of the aeroplane, when one is identified in the relevant aeroplane documentation, reduced by an operational safety margin specified by the DGCA.

Note 1.— Cargo compartment fire suppression time capabilities will be identified in the relevant aeroplane documentation when they are to be considered for the operation.

Note 2.— Fifteen minutes is an operational safety margin commonly retained for that purpose.

Note 3.— Refer to Para 4.7 for considerations of time capability of cargo compartment fire suppression systems for aeroplanes engaged in EDTO.

4.4 In-flight procedures

4.4.1 Aerodrome operating minima

4.4.1.1 A flight shall not be continued towards the aerodrome of intended landing, unless the latest available information indicates that at the expected time of arrival, a landing can be effected at that aerodrome or at least one destination alternate aerodrome, in compliance with the operating minima established in accordance with 4.2.8.1.

4.4.1.2 An instrument approach shall not be continued below 300 m (1 000 ft) above the aerodrome elevation or into the final approach segment unless the reported visibility or controlling RVR is at or above the aerodrome operating minima.

Note.— Criteria for the Final Approach Segment is contained in PANS-OPS (Doc 8168), Volume II.

4.4.1.3 If, after entering the final approach segment or after descending below 300 m (1 000 ft) above the aerodrome elevation, 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 at any aerodrome beyond a point at which the limits of the operating minima specified for that aerodrome 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.

4.4.2 **Meteorological observation**

The procedures for making meteorological observations on board aircraft in flight and for recording and reporting them, contained in CAR Section 9 Series M Part I and AIP shall be followed.

Note - The procedures for making meteorological observations on board aircraft in flight and for recording and reporting them are contained in Annex 3, the PANS-ATM (Doc 4444), the PANS-MET (Doc 10157) and the appropriate Regional Supplementary Procedures (Doc 7030).

4.4.2.1 The pilot-in-command shall report the runway braking action special air-report (AIREP) when the runway braking action encountered is not as good as reported.

Note - The procedures for making special air-reports regarding runway braking action are contained in the PANS-ATM (Doc 4444), Chapter 4 and Appendix 1.

4.4.3 **Hazardous flight conditions**

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

4.4.4 **Flight crew members at duty stations**

4.4.4.1 *Take-off and landing*. All flight crew members required to be on flight deck duty shall be at their stations.

4.4.4.2 *En route*. All flight crew members required to be on flight deck duty hall 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.

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

4.4.4.4 *Safety harness.* Any flight crew member occupying a pilot's seat shall keep the safety harness fastened during the take-off and landing phases; all other flight crew members shall 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 straps and a seat belt which may be used independently.

4.4.5 **Use of Oxygen**

4.4.5.1 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 4.3.9.1 or 4.3.9.2.

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

4.4.6 **Safeguarding of cabin crew and passengers in pressurized aeroplanes in the event of loss of pressurization**

4.4.6.1 It is recommended that Cabin crew should be safeguarded so as to ensure reasonable probability of their retaining consciousness during any emergency descent which may be necessary in the event of loss of pressurization and, in addition, they should have such means of protection as will enable them to administer first aid to passengers during stabilized flight following the emergency. Passengers should be safeguarded by such devices or operational procedures as will ensure reasonable probability of their surviving the effects of hypoxia in the event of loss of pressurization.

Note: It is not envisaged that cabin crew will always be able to provide assistance to passengers during emergency descent procedures which may be required in the event of loss of pressurization.

4.4.7 **In-flight operational instructions**

Operational instructions involving a change in the ATS flight plan shall, when practicable, be coordinated with the appropriate ATS unit before transmission to the aeroplane.

Note.- When the above co-ordination has not been possible, operational instructions do not relieve a pilot of the responsibility for obtaining an appropriate clearance from an ATS unit if applicable, before making a change in flight plan

4.4.8 **Instrument flight procedures**

4.4.8.1 One or more instrument approach procedures designed to support instrument approach operations shall be approved and promulgated by the State in which the aerodrome is located to serve each instrument runway or aerodrome utilized for instrument flight operations.

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

Note 1- See 4.2.8.3 for instrument approach operation classifications

Note 2 - Information for pilots on flight procedure parameters and operational procedures is contained in PANS-OPS (Doc 8168), Volume I. Criteria for the construction of visual and instrument flight procedures are contained in PANS-OPS (Doc 8168), Volume II. Obstacle clearance criteria and procedures used in certain States may differ from PANS-OPS, and knowledge of these differences is important for safety reasons.

4.4.9 **Aeroplane operating procedures for noise abatement**

4.4.9.1 Aeroplane operating procedures for noise abatement should comply with the provisions as specified by aerodrome authorities.

4.4.9.2 Noise abatement procedures specified by an operator for any one aeroplane type should be the same for all aerodromes.

Note.— A single procedure may not satisfy requirements at some aerodromes.

4.4.10 Aeroplane operating procedures for rates of climb and descent

It is recommended that unless otherwise specified in an air traffic control instruction, to avoid unnecessary airborne collision avoidance system (ACAS II) resolution advisories in aircraft at or approaching adjacent altitudes or flight levels, operators should specify procedures by which an aeroplane climbing or descending to an assigned altitude or flight level, especially with an autopilot engaged, may do so at a rate less than 8 m/sec or 1 500 ft/min (depending on the instrumentation available)throughout the last 300 m (1 000ft) of climb or descent to the assigned level when the pilot is made aware of another aircraft at or approaching an adjacent altitude or flight level.

Note.— Material concerning the development of these procedures is contained in the PANS-OPS (Doc 8168) Volume I, Part III, Section 3, Chapter 3.

4.4.11 **Aeroplane operating procedures for landing performanc**e

Note – Para 4.4.11 will applicable on 4th November 2021

An approach to land shall not be continued below 300 m (1 000 ft) above aerodrome elevation unless the pilot-in-command is satisfied that, with the runway surface condition information available, the aeroplane performance information indicates that a safe landing can be made.

Note 1.— The procedures used by aerodromes to assess and report runway surface conditions are contained in the PANS-Aerodromes (Doc 9981) and those for using runway surface condition information on board aircraft in the Aeroplane Performance Manual *(Doc 10064)*

Note 2.— Guidance on development of aeroplane performance information is contained in the Aeroplane Performance Manual *(Doc 10064).*

4.5 Duties of pilot-in-command

4.5.1 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.

4.5.2 The pilot-in-command shall ensure that the checklists specified in 4.2.6 are complied with in detail.

4.5.3 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 The Aircraft (Investigation of Accident and Incidents) Rules, 2017.

4.5.4 The pilot-in-command shall be responsible for reporting all known or suspected defects in the aeroplane, to the operator, at the termination of the flight.

4.5.5 The pilot-in-command shall be responsible for the journey log book or the general declaration containing the information listed in 11.4.1.

4.6 Duties of flight operations officer/ flight dispatcher

4.6.1 A flight operations officer/flight dispatcher when employed shall be trained in accordance with CAR Section 7, Series 'M' Part II shall:

a) assist the pilot-in-command in flight preparation and provide the relevant information;

b) assist the pilot-in-command in preparing the operational flight plan and the flight plan to be filed;

c) when applicable, assist the pilot-in-command in preparing the preliminary flight plan, and submit it to a unit designated by the appropriate ATS authority

d) sign, when applicable, and file the flight plan to a unit designated by the appropriate ATS authority;

e) furnish the pilot-in-command while in flight, by appropriate means, with information which may be necessary for the safe conduct of the flight.

f) notify the appropriate ATS unit when the position of the aeroplane cannot be determined by an aircraft tracking capability, and attempts to establish communication are unsuccessful.

Note 1.— The requirements for flight plans are contained in Annex 2 — Rules of the Air and the procedures relating to flight plans and associated services are contained in the Procedures for Air Navigation Services — Air Traffic Management (PANS-ATM, Doc 4444).

Note 2.— Detailed guidance on the use of the FF-ICE services, including the use of a preliminary flight plan, can be found in the Manual on Flight and Flow — Information for a Collaborative Environment (FF-ICE) (Doc 9965).

4.6.2 In the event of an emergency, a flight operations officer/flight dispatcher shall:

a) initiate such procedures as outlined in the operations manual while avoiding taking any action that would conflict with ATC procedures; and

b) convey safety-related information to the pilot-in-command that may be necessary for the safe conduct of the flight, including information related to any amendments to the flight plan that become necessary in the course of the flight.

Note.— It is equally important that the pilot-in-command also convey similar information to the flight operations officer/ flight dispatcher during the course of the flight, particularly in the context of emergency situations.

4.7 Additional requirements for operations by aeroplanes with turbine engines beyond 60 minutes to an en-route alternate aerodrome including extended diversion time operations (EDTO)

4.7.1 Requirements for operations beyond 60 minutes to an en-route alternate aerodrome

4.7.1.1 Operators conducting operations beyond 60 minutes from a point on a route to an en- route alternate aerodrome shall ensure that:

a) for all aeroplanes:

1) en-route alternate aerodromes are identified; and

2) the most up-to-date information is provided to the flight crew on identified en- route alternate aerodromes, including operational status and meteorological conditions;

b) for aeroplanes with two turbine engines, the most up-to-date information provided to the flight crew indicates that conditions at identified en-route alternate aerodromes will be at or above the operator's established aerodrome operating minima for the operation at the estimated time of use.

Note. - Guidance on compliance with the requirements of these provisions is contained in CAR Section 8 Series S Part I and in the Extended Diversion Time Operations Manual (Doc 10085)

4.7.1.2 In addition to the requirements in 4.7.1.1, all operators shall ensure that the following are taken into account and provide the overall level of safety intended by the provisions of this CAR:

a) operational control and flight dispatch procedures;

b) operating procedures; and

c) training programmes.

4.7.2 **Requirements for extended diversion time operations (EDTO)**

4.7.2.1 Unless DGCA has issued a specific approval for EDTO, an aeroplane with two or more turbine engines shall not be operated on a route where the diversion time to an en- route alternate aerodrome from any point on the route, calculated in ISA and still-air conditions at the one-engine-inoperative cruise speed for aeroplanes with two turbine engines and at the all

engines operating cruise speed for aeroplanes with more than two turbine engines, exceeds a threshold time established for such operations by DGCA. The specific approval shall identify the applicable threshold time established for each particular aeroplane and engine combination.

Note 1.— When the diversion time exceeds the threshold time, the operation is considered to be an extended diversion time operation (EDTO).

Note 2.-Guidance on the establishment of an appropriate threshold time and on specific approval of extended diversion time operations is contained in CAR Section 8 Series S Part I

Note 3.— For the purpose of EDTO, the take-off and/or destination aerodromes may be considered en-route alternate aerodromes

Note 4 - Requirements for EDTO are given in CAR Section 8, Series 'S' Part I.

4.7.2.2 On issuing the specific approval for extended diversion time operations DGCA shall specify the maximum diversion time granted to the operator for each particular aeroplane and engine combination.

Note.— Guidance on the conditions to be used when converting EDTO maximum diversion times to distances is contained in CAR Section 8 Series S Part I.

4.7.2.3 When specifying the appropriate maximum diversion time for an operator of a particular aeroplane type engaged in extended diversion time operations, DGCA shall ensure that:

a) *for all aeroplanes:* the operator shall have in place procedures to prevent the aeroplane being dispatched on a route with diversion times beyond the capability of EDTO significant system time limitation, if any, indicated in the aeroplane flight manual (directly or by reference) and

b) *for aeroplanes with two turbine engines:* the aeroplane is EDTO certified.

Note 1.— EDTO may be referred to as ETOPS in some documents.
Note 2.— Guidance on the conditions to be used when converting EDTO significant system time limitations to distances and on the consideration of the EDTO system time limitations at dispatch the Extended Diversion Time Operations Manual (Doc 10085).

4.7.2.3.1 Notwithstanding the provisions in 4.7.2.3 a), DGCA may, based on the results of a specific safety risk assessment conducted by the operator which demonstrates how an equivalent level of safety will be maintained, approve operations beyond the time limits

of the most time - limited system. The specific safety risk assessment shall include at least the:

a) capabilities of the operator;

b) overall reliability of the aeroplane;

c) reliability of each time-limited system;

d) relevant information from the aeroplane manufacturer; and

e) specific mitigation measures.

Note.— Guidance on the specific safety risk assessment is contained in CAR Section 8 Series S Part I and the Extended Diversion Time Operations Manual (Doc 10085).

4.7.2.4 For aeroplanes engaged in EDTO, the additional fuel required by 4.3.6.3 f(2) shall include the fuel necessary to comply with the EDTO critical fuel scenario as established by DGCA.

Note.— Guidance on compliance with the requirements of this provision is in CAR Section 8 Series S Part I and the Extended Diversion Time Operations Manual (Doc 10085)..

4.7.2.5 A flight shall not proceed beyond the threshold time in accordance with 4.7.2.1 unless the identified en-route alternate aerodromes have been re-evaluated for availability and the most up-to-date information indicates that, during the estimated time of use, conditions atthose aerodromes will be at or above the operator's established aerodrome operating minima for the operation. If any conditions are identified that would preclude a safe approach and landing at that aerodrome during the estimated time of use, an alternative course of action shall be determined.

4.7.2.6 DGCA shall, when specifying maximum diversion times for aeroplanes with two turbine engines, ensure that the following are taken into account in providing the overall level of safety intended by the provisions of Annex 8:

a) reliability of the propulsion system;

b) airworthiness certification for EDTO of the aeroplane type; and

c) EDTO maintenance programme.

Note 1.— EDTO may be referred to as ETOPS in some documents.

Note 2.— The Airworthiness Manual *(Doc 9760) contains guidance on the level of performance and reliability of aeroplane systems intended by 4.7.2.6, as well as guidance on continuing airworthiness aspects of the requirements of 4.7.2.6.*

4.8 Carry-on baggage

The operator shall ensure that all baggage carried onto an aeroplane and taken into the passenger cabin is adequately and securely stowed.

4.9 Additional requirements for single pilot operations under the Instrument Flight Rules (IFR)

4.9.1 An aeroplane shall not be operated under the IFR by a single pilot unless approved by DGCA.

4.9.2 An aeroplane shall not be operated under the IFR by a single pilot unless:

a) the flight manual does not require a flight crew of more than one;

b) the aeroplane is propeller-driven;

c) the maximum approved passenger seating configuration is not more than nine;

d) the maximum certificated take-off mass does not exceed 5 700 kg;

e) the aeroplane is equipped as described in 6.23; and

f) the pilot-in-command has satisfied requirements of experience, training, checking and recency described in 9.4.5.

4.10 Fatigue Management

The operator shall comply with the CAR requirements established in Section 7 Series ‘J’ “**Flight Duty Time Limitations**” for Flight Crew and Cabin Crew for fatigue Management.

5.0 AEROPLANE PERFORMANCE OPERATING LIMITATIONS

5.1 General

5.1.1 Aeroplanes shall be operated in accordance with the provisions of the Flight Manual approved by the State of design.

5.1.2 Except as provided in 5.4, single-engine aeroplanes shall only be operated in conditions of weather and light, and over such routes and diversions there from, that permit a safe forced landing to be executed in the event of engine failure.

5.2 Applicable to aeroplanes certificated in accordance with Parts IIIA and IIIB of Annex 8

5.2.1 The Standards contained in 5.2.2 to 5.2.11 inclusive are applicable to the large aeroplanes to which Parts IIIA and IIIB of Annex 8 are applicable.

Note.— The following Standards do not include quantitative specifications comparable to those found in national airworthiness codes. In accordance with 5.1.1, they are to be supplemented by national requirements prepared by Contracting States.

5.2.2 The level of performance defined by the appropriate parts of the comprehensive and details as mentioned in 5.1.1 for the aeroplanes designated in 5.2.1 shall be at least substantially equivalent to the overall level embodied in the Standards of this CAR.

5.2.3 An aeroplane shall be operated in compliance with the terms of its certificate of airworthiness and within the approved operating limitations contained in its flight manual.

5.2.4 The operator shall take such precautions as are reasonably possible to ensure that the general level of safety contemplated by these provisions is maintained under all expected operating conditions, including those not covered specifically by the provisions of this CAR.

5.2.5 A flight shall not be commenced unless the performance information provided in the flight manual, supplemented as necessary with other data acceptable to the DGCA, indicates that the Standards of 5.2.6 to 5.2.11 can be complied with for the flight to be undertaken.

5.2.6 In applying the Standards of this CAR, account shall be taken of all factors that significantly affect the performance of the aeroplane, (including, but not limited to: the mass of the aeroplane, the operating procedures, the pressure- altitude appropriate to the elevation of the aerodrome, the runway slope, the ambient temperature, the wind, and surface conditions of runway at the expected time of use i.e., presence of snow, slush, water, and/or ice; for landplanes, water surface condition for seaplanes). Such factors shall be taken into account directly as operational parameters or indirectly by means of allowances or margins, which may be provided in the scheduling of performance data or in comprehensive and detailed code of performance in accordance with which the aeroplane is being operated.

Note.— Guidelines for using runway surface condition information on board aircraft in accordance with 4.4.11 are contained in the Aeroplane Performance Manual *(Doc 10064).*

5.2.7 **Mass limitations**

a) The mass of the aeroplane at the start of take-off shall not exceed the mass at which 5.2.8 is complied with, nor the mass at which 5.2.9, 5.2.10 and 5.2.11 are complied with, allowing for expected reductions in mass as the flight proceeds, and for such fuel jettisoning as is envisaged in applying 5.2.9 and 5.2.10 and, in respect of alternate aerodromes, 5.2.7 c) and 5.2.11.

b) In no case shall the mass at the start of take-off exceed the maximum take-off mass specified in the flight manual for the pressure-altitude appropriate to the elevation of the aerodrome, and, if used as a parameter to determine the maximum take-off mass, any other local atmospheric condition.

c) In no case shall the estimated mass for the expected time of landing at the aerodrome of intended landing and at any destination alternate aerodrome, exceed the maximum landing mass specified in the flight manual for the pressure-altitude appropriate to the elevation of those aerodromes, and if used as a parameter to determine the maximum landing mass, any other local atmospheric condition.

d) In no case shall the mass at the start of take-off, or at the expected time of landing at the aerodrome of intended landing and at any destination alternate aerodrome, exceed the relevant maximum masses at which compliance has been demonstrated with the applicable noise certification Standards in CAR Section 6 Series C Part II, unless otherwise authorized in exceptional circumstances for a certain aerodrome or a runway where there is no noise disturbance problem, by DGCA (for aerodromes located in India) or State of the Aerodrome.

5.2.8 *Take-off.* The aeroplane shall be able, in the event of a critical engine failing or for other reason at any point in the take-off, either to discontinue the take- off and stop within the accelerate-stop distance available, or to continue the take-off and clear all obstacles along the flight path by an adequate vertical or horizontal distance until the aeroplane is in a position to comply with 5.2.9. When determining the resulting take-off obstacle accountability area, the operating conditions, such as the crosswind component and navigation accuracy, must be taken into account.

5.2.8.1 In determining the length of the runway available, account shall be taken of the loss, if any of the runway length due to alignment of the aeroplane prior to take-off.

5.2.9 *En route – one engine inoperative*. The aeroplane shall be able, in the event of the critical engine becoming inoperative at any point along the route or planned diversions therefrom, to continue the flight to an aerodrome at which the Standard of 5.2.11 can be met, without flying below the minimum flight altitude at any point.

5.2.10 *En route — two engines inoperative.* In the case of aeroplanes having three or more engines, on any part of a route where the location of enroute alternate aerodromes and the total duration of the flight are such that the probability of a second engine becoming inoperative must be allowed for if the general level of safety implied by the Standards of this CAR is to be maintained, the aeroplane shall be able, in the event of any two engines becoming inoperative, to continue the flight to an enroute alternate aerodrome and land.

5.2.11 *Landing*. The aeroplane shall, at the aerodrome of intended landing and at any alternate aerodrome after clearing all obstacles in the approach path by a safe margin, be able to land, with assurance that it can come to a stop or, for a seaplane, to a satisfactorily low speed, within the landing distance available. Allowance shall be made for expected variations in the approach and landing techniques, if such allowance has not been made in the scheduling of performance data.

Note.— Guidelines for using runway surface condition information on board aircraft in accordance with 4.4.11 are contained in the Aeroplane Performance Manual *(Doc 10064).*

5.3 Obstacle data

5.3.1 The operator shall obtain details of all obstacle data to develop procedures to comply with 5.2.9.

Note.— See Annex 4 and Annex 15, Chapter 5 and Appendix 1 and PANS-AIM, Chapter 5 for methods of presentation of certain obstacle data.

5.3.2 The operator shall take account of charting accuracy when assessing compliance with 5.2.8.

5.4 Additional requirements for operations of single-engine turbine-powered aeroplanes at night and/or in Instrument Meteorological Conditions

(IMC details are in Appendix 3)

5.4.1 In approving operations by single-engine turbine-powered aeroplanes at night and / or in IMC, DGCA shall ensure that the airworthiness certification of the aeroplane is appropriate and that the overall level of safety intended by the provisions of Annexes6 and 8 is provided by:

a) the reliability of the turbine engine;

b) the operator's maintenance procedures, operating practices, flight dispatch procedures and crew training programmes; and

c) equipment and other requirements provided in accordance with Appendix 3.

5.4.2 All single-engine turbine-powered aeroplanes operated at night and/or in IMC shall have an engine trend monitoring system, and those aeroplanes for which the individual certificate of airworthiness is first issued on or after 1st January 2005 shall have an automatic trend monitoring system.

6 AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6 .1 General

6.1.1 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 of approved type.

6.1.2 An aeroplane shall carry a certified true copy of the air operator certificate specified in 4.2.1, and a copy of the operations specifications relevant to the aeroplane, issued in conjunction with the certificate.

Note.— Provisions for the content of the air operator permit and its associated operations specifications are contained in 4.2.1.6 and 4.2.1.7.

6.1.3 The operator shall include in the Operations Manual a minimum equipment list (MEL), approved by the DGCA which will enable the pilot-in-command to determine whether a flight may be commenced or continued from any intermediate stop should any instrument, equipment or system become inoperative. Where the State of the operator is not the State of Registry, the State of the operator shall ensure that the MEL does not affect the aeroplane’s compliance with the airworthiness requirements applicable in the State of Registry.

Note.— Guidance on the minimum equipment list is contained in CAR Section 2 Series B Part I.

6.1.4 The operator shall provide operations staff and flight crew with an aircraft operating manual, for each aircraft type operated, containing the normal, abnormal and emergency procedures relating to the operation of the aircraft. The manual shall include details of the aircraft systems and of the checklists to be used. (The design of the manual shall observe Human Factors principles.)

Note- Guidance material on the application of Human Factors principles can be found in the Human Factors Training Manual (ICAO Doc 9683).

6.1.5 **Aeroplane operated under an Article 83 bis agreement**

Note.- Guidance concerning the transfer of responsibilities by the State of Registry to the State of the Operator in accordance with Article 83 bis is contained in the Manual on the Implementation of Article 83 bis of the Convention on International Civil Aviation (Doc 10059).

6.1.5.1 An aeroplane, when operating under an Article 83 bis agreement entered into between the State of Registry and the State of the Operator shall carry a certified true copy of the agreement summary in either an electronic or hard copy format. When the summary is issued in a language other than English, an English translation shall be included.

Note- Guidance regarding the agreement summary is contained in the manual on the implementation of Article 83 bis of the Convention on International Civil Aviation (Doc10059).

6.1.5.2 The agreement summary of an Article 83 bis agreement shall be accessible to a civil aviation safety inspector to determine which functions and duties are transferred under the agreement by the State of Registry to the State of the Operator, when conducting surveillance activities such as ramp checks.

Note.- Guidance for the civil aviation safety inspector conducting an inspection of an aeroplane operated under an Article 83 bis agreement is contained in the Manual of Procedures for Operations Inspection Certification and Continued Surveillance (Doc 8335).

6.1.5.3 The agreement summary shall be transmitted to ICAO together with the Article 83 bis Agreement for registration with the ICAO Council by the State of Registry or the State of the Operator.

Note.- The agreement summary transmitted with, the Article 83 bis agreement registered with the ICAO Council contains the list of all aircraft affected by the agreement. However, the certified true copy to be carried on board as per 6.1.5.1 will need to list only the specific aircraft carrying the copy.

6.1.5.4 The agreement summary should contain the information for the specific aircraft and should follow the layout out as specified in Appendix 10.

6.2 All aeroplanes on all flights

6.2.1 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 manoeuvres and observe the operating limitation of the aeroplane in the expected operating conditions.

6.2.2 An aeroplane shall be equipped with:

a) accessible and adequate medical supplies;

Medical supplies should comprise:

1) one or more first-aid kits for the use of cabin crew in managing incidents of ill health; and

2) for aeroplanes required to carry cabin crew as part of the operating crew, one universal precaution kit (two for aeroplanes authorized to carry more than 250 passengers) for the use of cabin crew members in managing incidents of ill health associated with a case of suspected communicable disease, or in the case of illness involving contact with body fluids; and

3) for aeroplanes authorized to carry more than 100 passengers, on a sector length of more than two hours, a medical kit, for the use of medical doctors or other qualified persons in treating in-flight medical emergencies.

Note.— Guidance on the types, number, location and contents of the medical supplies is given in Attachment A.

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 that is not readily accessible to the flight crew.

Note.1- Any portable fire extinguisher so fitted in accordance with the Certificate of Airworthiness of the aeroplane may count as one prescribed.

Note 2. – Refer to 6.2.2.1 for fire extinguishing agents.

c) 1) a seat or berth for each person over an age of two years;

2) a seat belt for each seat and restraining belts for each berth; and

3) a safety harness for each flight crew seat. The safety harness for each pilot seat shall incorporate a device which will automatically restrain the occupant's torso in the event of rapid deceleration.

It is recommended that the safety harness for each pilot seat should incorporate a device to prevent a suddenly incapacitated pilot from interfering with the flight controls.

Note: Safety harness includes shoulder straps and a seat belt which may be used independently.

d) means of ensuring that the following information and instructions are conveyed to passengers:

1) when seat belts are to be fastened;

2) when and how Oxygen equipment is to be used if the carriage of oxygen is required.

3) restrictions on smoking;

Note.- Smoking is prohibited in the domestic flights.

4) location and use of life jackets or equivalent individual flotation devices where their carriage is required;

5) location and method of opening emergency exits;

e) spare electrical fuses of appropriate ratings for replacement of those accessible in flight.

6.2.2.1 Any agent used in a built-in fire extinguisher for each lavatory disposal receptacle for towels, paper or waste in an aeroplane for which the individual certificate of airworthiness is first issued on or after 31 December 2011 and any extinguishing agent used in a portable fire extinguisher in an aeroplane for which the individual certificate of airworthiness is first issued on or after 31 December 2018 shall:

a) meet the applicable minimum performance requirements, and;

b) not be of a type listed in Annex A, Group II of the *Montreal Protocol on Substances That Deplete the Ozone Layer*, 8th Edition, 2009.

Note.— Information concerning extinguishing agents is contained in the UNEP Halons Technical Options Committee Technical Note No. 1 – New Technology Halon Alternatives *and* FAA Report No. DOT/FAA/AR-99-63, Options to the Use of Halons for Aircraft Fire Suppression Systems.

6.2.3 An aeroplane shall carry:

a) the operations manual prescribed in 4.2.2 or those parts of it that pertain to flight operations;

b) the flight manual for the aeroplane, or other documents containing performance data required for the application of Section 5 and any other information necessary for the operation of the aeroplanes within the terms of its certificate of airworthiness unless this data are available in the Operations Manual;

c) current and suitable charts to cover the route of the proposed flight and any route along which it is reasonable to expect that the flight may be diverted; and

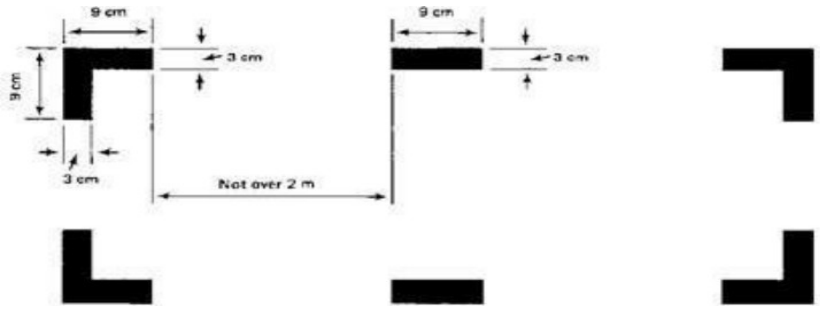
d) any other documents prescribed in CAR Section 2, Series X- Part VII.

6.2.4 Marking of break-in points

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

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

Note.— This does not require any aeroplane to have break-in areas.



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

6.4 All aeroplanes operated as VFR flights

6.4.1 All aeroplane when operated in accordance with VFR shall be equipped with:

a) a magnetic compass;

b) an accurate time piece indicating the time in hours, minutes and seconds.

c) a sensitive pressure altimeter;

d) an airspeed indicator;

e) rpm indicator for each engine;

f) free air temperature indicator;

g) oil pressure indicator for each engine;

h) oil quantity indicator for each tank;

i) CHT indicator for each engine having rated BHP above 250 or EGT gauge for each engine in case turbine engine is fitted;

j) oil temperature gauge for each engine;

k) fuel quantity indicator for each tank;

l) landing gear position indicator for aircraft fitted with retractable landing gear.

6.4.2 VFR flights which are operated as controlled flights shall be equipped in accordance with 6.9.

6.5 All aeroplanes on flights over water

6.5.1 Seaplanes

All seaplanes for all flights shall be equipped with

a) one life jacket or equivalent individual flotation device, for each person on board, stowed in a position easily accessible from the seat or berth of a person for whose use it is provided.

b) equipment for making the sound signal prescribed in the international regulations for preventing collisions at Sea, where applicable, and;

c) one sea anchor (drogue)

Note: "Seaplanes" include amphibians operated as seaplanes.

6.5.2 Landplanes

6.5.2.1 Landplanes shall carry the equipment prescribed in para 6.5.2.2:

a) when flying over water and at a distance of more than 50 NM (93 km) away from the shore, in the case of landplanes operated in accordance with 5.2.9 or 5.2.10;

b) when flying en route over water beyond gliding distance from the shore, in the case of all other landplanes; and

c) when taking off or landing at an aerodrome where, in the opinion of DGCA, the takeoff or approach path is so disposed over water that in the event of a mishap there would be a likelihood of a ditching.

6.5.2.2 The equipment referred to in 6.5.2.1 shall comprise one life jacket 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 1:- "Landplanes" includes amphibians operated as landplanes.

Note 2 - Life jackets accessible from seats or berths located in crew rest compartments are required only if the seats or berths concerned are certified to be occupied during take- off and landing.

Note 3. —The acceptable means of compliance with this Standard, particularly in the case of infants, are in the Guidance on the preparation of an Operations Manual (Doc 10153), Chapter11 Attachment D.

6.5.3 All aeroplanes on long range over water flights

6.5.3.1 In addition to the equipment prescribed in 6.5.1 or 6.5.2 whichever is applicable, the following equipment shall be installed in all aeroplanes when used over routes on which the aeroplane may be over water and at more than a distance corresponding to 120 minutes at cruising speed or 400 NM (740 km), whichever is the lesser, away from land suitable for making an emergency landing in the case of aircraft operated with 5.2.9 or 5.2.10 and 30 minutes or 185 km (100 NM), whichever is the lesser, for all other aeroplanes:

a) lifesaving rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency, provided with such life-saving equipment including means of sustaining life as is appropriate to the flight to be undertaken; and

b) equipment for making the pyrotechnical distress signals described in CAR Section 9 Series ‘C’ Part I.

c) at the earliest practicable date, but not later than 1 January 2018, on all aeroplanes of a maximum certificated takeoff mass of over 27 000 kg, a securely attached underwater locating device operating at a frequency of 8.8 kHz. This automatically activated underwater locating device shall operate for a minimum of 30 days and shall not be installed in wings or empennage.

Note: Underwater locator beacon (ULB) performance requirements are as contained in the SAE AS6254, Minimum Performance Standard for Low Frequency Underwater Locating Devices (Acoustic) (Self-Powered), or equivalent documents.

6.5.3.2 Each life jacket when carried in accordance with 6.5.1 a), 6.5.2.1 and 6.5.2.2, shall be equipped with a means of electric illumination for the purpose of facilitating the location of persons, except where the requirement of 6.5.2.1 c) is met by the provision of individual floatation devices other than life jackets.

6.6 All aeroplanes on flights over designated land areas

Aeroplane when operated across land areas which may be designated by AAI as areas in which search and rescues would be especially difficult, shall be equipped with at least one survival radio equipment, stowed so as to facilitate its ready use in an emergency which operates on VHF. The equipment shall be portable, not dependent for operation upon the aircraft power supply and capable of being operated away from the aircraft by unskilled persons. Aeroplane shall also be equipped with such signaling devices and life-saving equipment (including means of sustaining life), as may be appropriate to the area overflown.

6. 7 All aeroplanes on high altitude flight

Note.— Approximate altitude in the Standard Atmosphere corresponding to the value of absolute pressure used in this text is as follows:

Absolute pressure	*Metres*	*Feet*
700 hPa	*3 000*	*10 000*
620 hPa	*4 000*	*13 000*
376 hPa	*7 600*	*25 000*

6.7.1 An aeroplane intended to be operated at altitudes at which the atmospheric pressure is less than 700 hPa shall be provided with oxygen storage and dispensing apparatus capable of storing and dispensing the oxygen supplies required in 4.3.9.1.

6.7.2 An aeroplane intended to be operated at flight altitudes at which the atmospheric pressure is less than 700 hPa but which is provided with means of maintaining pressures greater than 700 hPa in personnel compartments shall be provided with oxygen storage and dispensing apparatus capable of storing and dispensing the oxygen supplies required in 4.3.9.2.

6.7.3 Pressurised aeroplanes which are intended to be operated at flight altitude at which the atmospheric pressure would be less than 376 hPa, shall be equipped with the device to provide positive warning to the flight crew of any dangerous loss of pressurisation.

6.7.4 Pressurized aeroplanes introduced into service before 1 July 1962 and 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

6.7.5 An aeroplane intended to be 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 pressureis more than 376 hPa, cannot descend safely within four minutes to a flight altitude at which the atmospheric pressure is equal to 620 hPa shall be provided with automatically deployable

oxygen equipment to satisfy the requirements of 4.3.9.2. The total number of oxygen dispensing units shall exceed the number of passenger and cabin attendant seats by at least 10 per cent.

6.7.6 If an aeroplane intended to be 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 cannot descend safely within four minutes to a flight altitude at which the atmospheric pressure is equal to 620 hPa, and for which the individual certificate of airworthiness was first issued before 9 November 1998, should be provided with automatically deployable oxygen equipment to satisfy the requirements of 4.3.9.2. The total number of oxygen dispensing units should exceed the number of passenger and cabin crew seats by at least 10 percent.

6.8 All aeroplanes in icing conditions

All aeroplanes shall be equipped with suitable anti-icing and/or de-icing devices when operated in circumstances in which icing conditions are reported to exist or are expected to be encountered.

6.9 All aeroplanes operated in accordance with Instrument Flight Rules

6.9.1 All aeroplanes when operated in accordance with the instrument flight rules, or when the aeroplanes 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) two sensitive pressure altimeters with counter drum-pointer or equivalent presentation;

Note.— Neither three-pointer nor drum-pointer altimeters satisfy the requirement in 6.9.1(c).

d) an airspeed indicating system with 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 6.9.1 e), f) and g) 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) a means of indicating whether the power supply to the gyroscopic instrument 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 prescribed by DGCA.

6.9.2 All aeroplanes over 5700 kg - Emergency power supply for electrically operated attitude indicating instruments

6.9.2.1 All aeroplanes of a maximum certificated take off mass of over 5700 kg newly introduced into service after 1st January, 1975, shall be fitted with an emergency power supply independent of the main electrical generating system for the purpose of operating and illuminating for a minimum period of 30 minutes, an attitude indicating instrument (artificial horizon), clearly visible to the pilot-in-command. The emergency power supply shall be automatically operative after total failure of the main electrical generating system and clear indication shall be given on the instrument panel that the attitude indicator(s) is being operated by emergency power.

6.9.2.2 Those instruments that are used by any one pilot shall be so arranged as to Permit / Certificate the pilot to see their indications readily from his or her station, with the minimum practicable deviation from the position and line of vision normally assumed when looking forward along the flight path.

6.10 All aeroplanes when operated at night

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

a) all equipment specified in 6.9;

b) position lights;

c) anti collision lights;

d) two landing lights;

Note.— Aeroplanes not certificated in accordance with Annex 8 which are equipped with a single landing light having two separately energized filaments will be considered to have complied with 6.10 d).

e) illumination for all instruments and equipment that are essential for the safe operation of the aeroplane that are used by the flight crew;

f) Independent portable light in all passenger compartments; and

g) an electric torch for each crew member station

6.11 Pressurized aeroplanes when carrying passengers — weather radar

Pressurized aeroplanes when carrying passengers, should be equipped with operative weather radar whenever such aeroplane are operated in areas where thunderstorms or other potentially hazardous weather conditions regarded as detectable with airborne weather radar may be expected to exist along the route either at night or under Instrument Meteorological Conditions.

6.12 All aeroplanes operated above 15 000 m (49 000 ft) —radiation indicator

All aeroplanes intended to be operated above 15 000 m (49 000 ft) shall carry equipment to measure and indicate continuously the dose rate of total cosmic radiation being received (i.e. the total of ionizing and neutron radiation of galactic and solar origin) and the cumulative dose on each flight. The display unit of the equipment shall be readily visible to a flight crew member.

Note.— The equipment is calibrated on the basis of assumptions acceptable to the DGCA

6.13 All aero planes complying with the noise certification Standards in CAR Section 6

An aeroplane shall carry a document attesting noise certification in English language.

Note.— The attestation may be contained in any document, carried on board, approved by DGCA

6.14 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.

6.15 Aeroplanes required to be equipped with ground proximity warning systems (GPWS)

The operator shall ensure that requirements laid down in the CAR Section 2, Series 'I' Part VII in relation to the installation of Ground Proximity Warning System (GPWS) are followed.

6.16 Aeroplanes carrying passengers —cabin crew seats

6.16.1 All aeroplanes shall be equipped with a forward or rearward facing (within 15 degrees of the longitudinal axis of the aeroplane) seat, fitted with a safety harness for the use of each cabin crew member required to satisfy the intent of 12.1 in respect of emergency evacuation.

6.16.2 **Aeroplanes for which the individual certificate of airworthiness was first issued before 1 January 1981**

All aeroplanes should be equipped with a forward or rearward facing (within 15 degrees of the longitudinal axis of the aeroplane) seat, fitted with a safety harness for the use of each cabin crew member required to satisfy the intent of 12.1 in respect of emergency evacuation.

***Note**.— Safety harness includes shoulder straps and a seat belt which may be used independently.*

6.16.3 Cabin crew seats provided in accordance with 6.16.1 and 6.16.2 shall be located near floor level and other emergency exits as required by the DGCA for emergency evacuation.

6.17 Emergency locator transmitter (ELT)

6.17.1 All aeroplanes should carry an automatic ELT.

6.17.2 Except as provided for in 6.17.3, all aeroplanes authorized to carry more than 19 passengers shall be equipped with at least one automatic ELT or two ELTs of any type.

6.17.3 All aeroplanes authorized to carry more than 19 passengers for which the individual certificate of airworthiness is first issued after 1 July 2008 shall be equipped an automatic ELT and a separate device as follows:

a) where the aeroplane is not required to comply with 6.18.1, either a second ELT of any type or a device meeting the requirements of 6.18.1;

b) where the aeroplane is required to comply with 6.18.1 and the automatic ELT does not fulfil the requirements of 6.18.1, a device meeting the requirements of 6.18.1;

c) where the aeroplane is required to comply with 6.18.1 and the automatic ELT fulfils the requirements of 6.18.1, a second ELT of any type

6.17.4 Except as provided in 6.17.5 all aeroplanes authorized to carry 19 passengers or less shall be equipped with at least one ELT of any type.

6.17.5 All aeroplanes authorized to carry 19 passengers or less for which the individual certificate of airworthiness is first issued after 1 July 2008 shall be equipped with at least one automatic ELT.

6.17.6 ELT equipment carried to satisfy the requirements of 6.17.1, 6.17.2, 6.17.3, 6.17.4 and 6.17.5 shall operate in accordance with the relevant provisions of Section 9 Series D Part IV.

***Note**.— The judicious choice of numbers of ELTs, their type and placement on aircraft and associated floatable life support systems will ensure the greatest chance of ELT activation in the event of an accident for aircraft operating over water or land, including areas especially difficult for search and rescue. Placement of transmitter units is a vital factor in ensuring optimal crash and fire protection. The placement of the control and switching devices (activation monitors) of automatic fixed ELTs and their associated operational procedures will also take into consideration the need for rapid detection of inadvertent activation and convenient manual switching by crew members.*

6.18 Location of an aeroplane in distress

6.18.1 As of 1 January 2025, all aeroplanes of a maximum certificated take-off mass of over 27 000 kg for which the individual certificate of airworthiness is first issued on or after 1 January 2024, shall autonomously transmit information from which a position can be determined by the operator at least once every minute, when in distress, in accordance with Appendix 9.

6.18.2 All aeroplanes of a maximum certificated take-off mass of over 5 700 kg for which the individual certificate of airworthiness is first issued on or after 1 January 2023, should autonomously transmit information from which a position can be determined at least once every minute, when in distress, in accordance with Appendix 9.

6.18.3 The operator shall make position information of a flight in distress available to the appropriate search and rescue center.

Note 1.— Refer to 4.2.1.3.1 for operator responsibilities when using third parties.
Note 2.— Operational procedures for monitoring and making position information of a flight in distress available to the appropriate organizations in a timely manner are contained in PANJS- OPS, Volume III, Section 10

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

The operator shall ensure that requirements laid down in the CAR Section 2, Series 'I' Part VIII in relation to the installation of Airborne Collision Avoidance System (ACAS) are followed.

6.20 Requirements for pressure-altitude reporting transponders

6.20.1 All aeroplanes shall be equipped with a pressure- altitude reporting transponder which operates in accordance with the relevant provisions of Section 9 Series D Part V.

6.20.2 All aeroplanes for which the individual certificate of airworthiness is first issued after 1 January 2009 shall be equipped with a data source that provides pressure-altitude information with a resolution of 7.62 m (25 ft), or better.

6.20.3 All aeroplanes shall be equipped with a data source that provides pressure – altitude information with a resolution of 7.62 m (25 ft), or better.

6.20.4 The Mode S transponder should be provided with the airborne/on-the- ground status if the aeroplane is equipped with an automatic means of detecting such status.

Note 1.— These provisions will improve the effectiveness of airborne collision avoidance systems as well as air traffic services that employ Mode S radar. In particular, tracking processes are significantly enhanced with a resolution of 7.62 m (25 ft), or better.

Note 2.— Mode C replies of transponders always report pressure altitude in 30.50 m (100ft) increments irrespective of the resolution of the data source.

6.20.5 The operator shall ensure that requirements laid down in the CAR Section 2, Series 'R' Part IV in relation to the installation of Pressure Altitude Reporting Transponder are complied with.

Note 1- These provisions will improve the effectiveness of airborne collision avoidance system as well as air traffic services that employ Mode 'S' radar. In particular tracking processes are significantly enhanced with the resolution of 7.62 M (25ft), or better.

Note 2- Mode 'C' replies of transponders always report pressure altitudes in 30.50 m (100ft) increments irrespective of the resolution of the data source.

6.21 Microphones

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

6.22 Turbo-jet aeroplanes — forward-looking wind shear warning system

The requirements to the forward looking wind shear warning system are given in CAR Section 2, Series 'I' Part VII

6.23 All aeroplanes operated by a single pilot under the instrument flight rules (IFR)

For approval in accordance with 4.9.1, all aeroplanes operated by a single pilot under the IFR shall be equipped with:

a) a serviceable autopilot that has at least altitude hold and heading select modes;

b) a headset with a boom microphone or equivalent; and

c) means of displaying charts that enables them to be readable in all ambient light conditions.

6.24 Aeroplanes equipped with automatic landing systems, a head-up displays (HUD) and/or or equivalent displays, enhanced vision systems (EVS), synthetic vision systems (SVS) and/or combined vision systems (CVS)

6.24.1 Notwithstanding Para 4, Para 4.2.8.1.1 to Para 4.2.8.1.3, where aeroplanes are equipped with automatic landing systems, a HUD and/or equivalent displays, EVS, SVS or CVS, or any combination of those systems into a hybrid system the criteria for the use of such systems for the safe operation of an aeroplane shall be, as laid down in OC 18 of 2014.

Note.— Information regarding, automatic landing systems, a HUD or equivalent displays, EVS, SVS or CVS is contained in the Manual of All-Weather Operations *(Doc 9365).*

6.25 Electronic flight bags (EFBs)

6.25.1 EFB equipment

6.25.1.1 Where portable EFBs are used on board, the operator shall ensure that they do not affect the performance of the aeroplane systems, equipment or the ability to operate the aeroplane.

6.25.2 EFB functions

6.25.2.1 Where EFBs are used on board an aeroplane the operator shall:

a) assess the safety risk(s) associated with each EFB function;

b) establish and document the procedures for the use of, and training requirements for, the device and each EFB function; and

c) ensure that, in the event of an EFB failure, sufficient information is readily available to the flight crew for the flight to be conducted safely.

Note.— Guidance on safety risk assessments is contained in the Safety Management Manual (SMM) *(Doc 9859).*

6.25.2.2 DGCA shall issue specific approval for the operational use of EFB functions to be used for the safe operations of aeroplanes.

Note. — Requirements for obtaining specific approval for Operational use of EFB & C-EFB is contained in CAR Section 8 Series S Part VIII.

6.25.3 EFB Specific approval

6.25.3.1 When issuing a specific approval for the use of EFBs, DGCA shall ensure that:

a) the EFB equipment and its associated installation hardware, including interaction with aeroplane systems if applicable, meet the appropriate airworthiness certification requirements;

b) the operator has assessed the safety risks associated with the operations supported by the EFB function(s);

c) the operator has established requirements for redundancy of the information (if appropriate) contained in and displayed by the EFB function(s);

d) the operator has established and documented procedures for the management of the EFB function(s) including any database it may use; and

e) the operator has established and documented the procedures for the use of, and training requirements for, the EFB and the EFB function(s).

Note. — Guidance on safety risk assessments is contained in the Safety Management Manual (SMM) *(Doc 9859).*

6.26 TURBINE AEROPLANE - RUNWAY OVERRUN AWARENESS AND ALERTING SYSTEM (ROAAS*)*

6.26.1 All turbine-engined aeroplanes of a maximum certificated take-off mass in excess of 5,700 kg, for which the individual certificate of airworthiness is first issued on or after 1 January 2028, shall be equipped with a runway overrun awareness and alerting system (ROAAS).

Note 1.- An example of relevant guidance material for ROAAS may be found in EUROCAE ED-250, Minimum Operation Performance Specification (MOPS) for Runway Overrun Awareness and Alerting System (ROAAS.

Note 2. - Operator requirements for the use of ROAAS are contained in PANS-OPS, Volume III, Section 12.

7.0 Aeroplane Communication and Navigation Equipment

7.1 Communication equipment

7.1.1 An aeroplane shall be provided with radio communication equipment capable of:

a) conducting two-way communication for aerodrome control purposes;

b) receiving meteorological information at any time during flight; and

c) conducting two-way communication at any time during flight with at least one aeronautical station and with such other aeronautical stations and on such frequencies as may be 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 The radio communication equipment required in accordance with 7.1.1 shall provide for communications on the aeronautical emergency frequency 121.5 MHz.

7.1.3 For operations where communication equipment is required to meet an RCP specification for *performance-based communication* (PBC), an aeroplane shall, in addition to the requirements specified in 7.1.1:

a) be provided with communication equipment which will enable it to operate in accordance with the prescribed RCP specification;

b) have information relevant to the aeroplane RCP specification capabilities listed in the flight manual or other aeroplane documentation approved by the State of Design or DGCA; and

c) have information relevant to the aeroplane RCP specification capabilities included in the MEL

Note.—. Information on the performance-based communication and surveillance (PBCS) concept and guidance material on its implementation are contained in the Performance- *based Communication and Surveillance (PBCS) Manual (Doc 9869).*

7.1.4 DGCA shall, for operations where an RCP specification for PBC has been prescribed, ensure that the operator has established and documented:

a) normal and abnormal procedures, including contingency procedures;
b) flight crew qualification and proficiency requirements, in accordance with appropriate RCP specifications;

c) a training programme for relevant personnel consistent with the intended operations; and

d) appropriate maintenance procedures to ensure continued airworthiness, in accordance with appropriate RCP specifications.

7.1.5 DGCA shall ensure that, in respect of those aeroplanes mentioned in 7.1.3, adequate provisions exist for:

a) receiving the reports of observed communication performance issued by monitoring programmes established in accordance with Section 9 Series E Part I; and

b) taking immediate corrective action for individual aircraft, aircraft types or operators, identified in such reports as not complying with the RCP specification.

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 its operational flight plan; and

b) in accordance with the requirements of air traffic services;

except when navigation for flights under the VFR is accomplished by visual reference to landmarks.

7.2.2 For operations where a navigation specification for PBN 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 navigation specification(s); and

b) have information relevant to the aeroplane navigation specification capabilities listed in the flight manual or other aeroplane documentation approved by the State of the Design or DGCA; and

c) have information relevant to the aeroplane navigation specification capabilities included in the MEL.

Note.— Guidance on aeroplane documentation is contained in the Performance- based Navigation (PBN) Manual *(Doc 9613).*

7.2.3 DGCA shall, for operations where a navigation specification for PBN has been prescribed, ensure that the operator has established and documented:

a) normal and abnormal procedures including contingency procedures;

b) flight crew qualification and proficiency requirements in accordance with the appropriate navigation specifications;

c) a training programme for relevant personnel consistent with the intended operations; and

d) appropriate maintenance procedures to ensure continued airworthiness in accordance with the appropriate navigation specifications.

Note 1.— Guidance on safety risks and mitigations for PBN operations, in accordance with Annex 19, are contained in the Performance-based Navigation (PBN) Operational Approval Manual *(Doc 9997).*

Note 2.— Electronic navigation data management is an integral part of normal and abnormal procedures.

7.2.4 DGCA shall issue a specific approval for operations based on PBN authorization required (AR) navigation specifications.

Note.— Guidance on specific approvals for PBN authorization required (AR) navigation specifications is contained in the Performance-based Navigation (PBN) Operational Approval Manual *(Doc 9997).*

7.2.5 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 adherences to or departures from track to the required degree of accuracy at any point along with the track; and

b) has been authorised by DGCA for MNPS operations concerned.

Note.— *The prescribed minimum navigation performance specifications and the procedures governing their application are given in CAR Section 8, Series 'S' Part III.*

7.2.6 For flights in defined portions of airspace where, based on Regional Air Navigation Agreement, a reduced vertical separation minimum (RVSM) of 300 m (1 000 ft) is applied between FL 290 and FL 410 inclusive:

a) The aeroplane 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 ± 90 m (300 ft); and

4) automatically reporting pressure-altitude; and

b) DGCA shall issue a specific approval for RVSM Operations

7.2.7 Prior to granting the RVSM specific approval required in accordance with 7.2.6 the DGCA shall be satisfied that:

a) the vertical navigation performance capability of the aeroplane satisfies the requirements specified in the *Note* given below;
b) the operator has instituted appropriate procedures in respect of continued airworthiness (maintenance and repair) practices and programmes; and
c) the operator has instituted appropriate flight crew procedures for operations RVSM airspace.

Note.-- An RVSM s p e c i f i c 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.

7.2.8 Operator shall ensure that, in respect of those aeroplanes mentioned in 7.2.4 there exists a system for:

a) receiving the reports of height-keeping performance issued by the monitoring agencies established in accordance with Section 9 Series E Part I, para 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.

7.2.9 An operator that has been issued an RVSM specific approval shall ensure that a minimum of two aeroplanes of each aircraft type grouping of the operator have their height-keeping performance monitored at least once every two years or within intervals of 1 000 flight hours per aeroplane, whichever period is longer. If an operator aircraft type grouping consists of a single aeroplane, monitoring of that aeroplane shall be accomplished within the specified period.

Note.—Monitoring data from any regional monitoring programme established in accordance with Appendix 4, may be used to satisfy the requirement.

7.2.10 DGCA is responsible for airspace where RVSM has been implemented, or to issue RVSM specific 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 specific approval.

Note 1.— These provisions and procedures need to address both the situation where the aircraft in question is operating without a specific approval in the airspace of the State, and the situation where an operator for which the State has regulatory oversight responsibility is found to be operating without the required specific approval in the airspace of another State.

Note 2.— Guidance material relating to the specific approval for operation in RVSM airspace is contained in the Manual on a 300 m (1 000 ft) Vertical Separation Minimum Between FL 290 and FL 410 inclusive (Doc 9574).

Note 3 – Refer to CAR Section 8 Series S Part II

7.2.11 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 a 300 m (1 000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive (*Doc 9574).*

7.2.12 On flights in which it is intended to land in instrument meteorological conditions, an aeroplane 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.

7.3 Surveillance equipment

7.3.1 An aeroplane shall be provided with surveillance equipment which will enable it to operate in accordance with the requirements of air traffic services.

7.3.2 For operations where surveillance equipment is required to meet an RSP specification for performance-based surveillance (PBS), an aeroplane shall, in addition to the requirements specified in 7.3.1:

a) be provided with surveillance equipment which will enable it to operate in accordance with the prescribed RSP specification(s);

b) have information relevant to the aeroplane RSP specification capabilities listed in the flight manual or other aeroplane documentation approved by the State of Design or State of Registry; and

c) have information relevant to the aeroplane RSP specification capabilities included in the MEL.

Note 1.— Information on surveillance equipment is contained in the Aeronautical Surveillance Manual *(Doc 9924).*

Note 2.— Information on RSP specifications for performance-based surveillance is contained in the Performance-based Communication and Surveillance (PBCS) Manual *(Doc 9869).*

7.3.3 DGCA shall, for operations where an RSP specification for PBS has been prescribed, ensure that the operator has established and documented:

a) normal and abnormal procedures, including contingency procedures;

b) flight crew qualification and proficiency requirements, in accordance with appropriate RSP specifications;

c) a training programme for relevant personnel consistent with the intended operations; and

d) appropriate maintenance procedures to ensure continued airworthiness, in accordance with appropriate RSP specifications.

7.3.4 Operator shall ensure that, in respect of those aeroplanes mentioned in 7.3.2, adequate mechanism exists for:

a) providing to DGCA the reports of observed surveillance performance issued by monitoring programmes established in accordance with Section 9 Series E Part I, Chapter 3, 3.3.5.2; and

b) taking immediate corrective action for individual aircraft, aircraft types or operators, identified in such reports as not complying with the RSP specification

7.4 Installation

The equipment installation shall be such that the failure of any single unit required for either communication, navigation or surveillance purposes or any combination thereof both will not result in the failure of another unit required for communication, navigation or surveillance purposes.

7.5 Electronic navigation data management

7.5.1 An operator shall not employ electronic navigation data products that have been processed for application in the air and on the ground unless DGCA has approved the operator's procedures for ensuring that the process applied and the products delivered have met acceptable standards of integrity and that the products are compatible with the intended function of the equipment that will use them. Operator shall continue to monitor both process and products.

Note.-- Guidance relating to the processes that data suppliers may follow is contained in RTCA DO-200A/EUROCAE ED-76 and RTCA DO- 201A/EUROCAE ED-77.

7.5.2 An operator shall implement procedures that ensure the timely distribution and insertion of current and unaltered electronic navigation data to all aircraft that require it.

8 AEROPLANE CONTINUING AIRWORTHINESS

Note 1.— For the purpose of this chapter, "aeroplane" includes: powerplants, propellers, components, accessories, instruments, equipment and apparatus including emergency equipment.
Note 2.— Intentionally Left Blank
Note 3.— Guidance on continuing airworthiness requirements is contained in the Airworthiness Manual *(Doc 9760).*

8.1 Operator's Continuing Airworthiness Responsibilities

8.1.1 Operators shall ensure that,

a) each aeroplane they operate is maintained in an airworthy condition:

b) the operational and emergency equipment necessary for an intended flight is serviceable;

c) the Certificate of Airworthiness of each aeroplane they operate remains valid.

8.1.2 An operator shall not operate an aeroplane unless it is maintained and released to service by an organisation approved in accordance with CAR 145.

8.1.3 When DGCA accepts an equivalent system, the person signing the maintenance release shall be licensed in accordance with Aircraft Rules.

8.1.4 An operator shall employ a person or group of persons to ensure that all maintenance is carried out in accordance with the CAME.

8.1.5 The operator shall ensure that the maintenance of its aeroplanes is performed in accordance with maintenance programme.

8.2 Operator's Continuous Airworthiness Management Exposition (CAME)

8.2.1 The operator shall provide, for the use and guidance of maintenance and operational personnel concerned, a CAME, acceptable to the DGCA, in accordance with the requirements of 11.2. The design of the manual shall observe Human Factors principles.

Note.— Guidance material on the application of Human Factors principles can be found in the Human Factors Training Manual *(Doc 9683).*

8.2.2 The operator shall ensure that the CAME is amended as necessary to keep the information contained therein up to date.

8.2.3 Copies of all amendments to the operator's CAME shall be furnished promptly to all organizations or persons to whom the manual has been issued.

8.2.4 The operator shall provide DGCA with a copy of the operator's CAME, together with all amendments and/or revisions to it and shall incorporate in it such mandatory material as DGCA may require

8.3 Maintenance Programme

8.3.1 The operator shall provide, for the use and guidance of maintenance and operational personnel concerned, a maintenance programme, approved by DGCA, containing the information

required by 11.3. The design and application of the operator's maintenance programme shall observe Human Factors principles.

Note.— Guidance material on the application of Human Factors principles can be found in the Human Factors Training Manual (ICAO Doc 9683):

8.3.2 Copies of all amendments to the maintenance programme shall be furnished promptly to all organisation or persons to whom the maintenance programme has been issued.

8.4 Continuing Airworthiness Records

8.4.1 An operator shall ensure that the following records are kept for the period mentioned in 8.4.2:

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 to the aeroplane and its major components;

d) the time in service (hours, calendar time and cycles, as appropriate) since last overhaul or its components subject to a mandatory overhaul life;

e) the current status of aeroplane's compliance with the maintenance programme; and

f) the detailed maintenance records to show that all requirements for signing of a maintenance release have been met.

8.4.2 The records in 8.4.1 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 8.4.1 f) for a minimum period of one year after the signing of the maintenance release.

8.4.3 In the event of a temporary change of operator**,** the records shall be made available to new operator. In the event of any permanent change of operator, the records shall be transferred to new operator.

Note.— In the context of 8.4.3, a judgement on what should be considered as a temporary change of operator will need to be made by the DGCA in the light of the need to exercise control over the records, which will depend on access to them and the opportunity to update them.

8.4.4 As of 5 November 2020, records kept and transferred in accordance with 8.4 shall be maintained in a form and format that ensures readability, security and integrity of the records at all times.

Note 1.— The form and format of the records may include, for example, paper records, film records, electronic records or any combination thereof.

Note 2.— Guidance regarding electronic aircraft continuing airworthiness records is included in the Airworthiness Manual *(Doc 9760).*

8.5 Continuing Airworthiness Information

8.5.1 The operator of an aeroplane over 5 700 kg maximum certificated take-off mass shall monitor and assess maintenance and operational experience with respect to continuing airworthiness and provide information as prescribed and report through the system specified in CAR M.

8.5.2 The operator of an aeroplane over 5 700 kg maximum certificated take-off mass shall obtain and assess continuing airworthiness information and recommendations available from the organization responsible for the type design and shall implement resulting actions considered necessary in accordance with a procedure laid down in CAR M.

8.6 Modifications and repairs

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

8.7 Approved Maintenance organization

The approved maintenance organization shall comply with the requirements specified in CAR 145 as applicable.

8.8 Maintenance release

8.8.1 A maintenance release shall be completed and signed to certify that the maintenance work performed has been completed satisfactorily and in accordance with approved data and the procedures described in the maintenance organization's procedures manual.

8.8.2 A maintenance release shall contain a certification including:

a) basic details of the maintenance carried out including detailed reference of the approved data used;

b) the 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.

8.8.3 When maintenance is not carried out by an approved maintenance organization, the maintenance release shall include the following:

a) basic details of the maintenance carried out including detailed reference of the approved data used;
b) the date such maintenance was completed; and

c) the identity of the person or persons signing the release.

9 AEROPLANE FLIGHT CREW

9.1 Composition of the flight crew

9.1.1 The number and composition of the flight crew shall not be less than that specified in the operations manual. The flight crews shall include flight crew members in addition to the minimum numbers specified in the flight manual or other documents associated with the certificate of airworthiness, when necessitated by considerations related to the type of aeroplane used, the type of operation involved and the duration of flight between points where flight crews are changed.

Note:- CAR Section 8, Series "A" Part I specifies the number of crew required.

9.1.2 **Radio operator**

The flight crew shall hold valid Radio Operator's licence, authorizing him to operate the type of radio transmitting equipment to be used.

9.1.3 **Flight engineer**

When a separate flight engineer's station is incorporated in the design of an aeroplane, the flight crew shall include at least one flight engineer especially assigned to that station, unless the duties associated with that station can be satisfactorily performed by another flight

crew member, holding a flight engineer licence, without interference with regular duties.

9.1.4 **Flight navigator**

The flight crew shall include at least one member who holds a flight navigator licence as required in Sub Rule (3) of Rule 38A of the Aircraft Rule 1937 where navigation necessary for the safe conduct of the flight cannot be adequately accomplished by the pilots from the pilot station.

9.2 Flight crew member emergency duties

An operator shall, for each type of aeroplane, assign to all flight crew members the necessary functions they are to perform in an emergency or in a situation requiring emergency evacuation. Annual training in accomplishing these functions shall be contained in the operator's training programme and shall include instruction in the use of all emergency and lifesaving equipment required to be carried, and drills in the emergency evacuation of the aeroplane.

9.3 Flight crew member training programmes

9.3.1 An operator shall establish and maintain a ground and flight training programme, approved by the DGCA, which ensures that all flight crew members are adequately trained to perform their assigned duties. The training programme shall:

a) include ground and flight training facilities and properly qualified instructors as accepted by the DGCA ;

b) consist of ground and flight training in the type(s) of aeroplane on which the flight crew member serves;

c) include proper flight crew coordination and training in all types of emergency and abnormal situations or procedures caused by power plant, airframe or systems malfunctions, fire or other abnormalities;

d) include upset prevention and recovery training as given in Operations Circular 06 of 2018;

e) include training in knowledge and skills related to visual and instrument flight procedures for the intended area of operation, charting, human performance including threat and error management and in the transport of dangerous goods;

f) ensure that all flight crew members know the functions for which they are responsible and the relation of these functions to the functions of other crew members, particularly in regard to abnormal or emergency procedures; and

g) be given on a recurrent basis, as determined by DGCA and shall include an assessment of competence.

Note 1.— Paragraph 4.2.5 prohibits the in-flight simulation of emergency or abnormal situations when passengers or cargo are being carried.

Note 2.— Flight training may, to the extent deemed appropriate by DGCA, be given in flight simulation training devices approved by the DGCA for that purpose.

Note 3.— The scope of the recurrent training required by 9.2 and 9.3 may be varied and need not be as extensive as the initial training given in a particular type of aeroplane.

Note 4.— The use of correspondence courses and written examinations as well as other means may, be utilized in meeting the requirements for periodic ground training as approved by DGCA

Note 5.— For more information on dangerous goods operational requirements see Chapter 14.

Note 6.— Guidance material to design training programmes to develop knowledge and skills in human performance can be found in the Human Factors Training Manual *(Doc 9683)*.

Note 7.— Information for pilots and flight operations personnel on flight procedure parameters and operational procedures is contained in PANS-OPS, Volume I. Criteria for the construction of visual and instrument flight procedures are contained in PANS-OPS, Volume II. Obstacle clearance criteria and procedures used in certain States may differ from PANS-OPS, and knowledge of these differences is important for safety reasons.

Note 8.— Guidance material to design flight crew training programmes can be found in the Preparation of an Operations Manual *(Doc 9376).*

Note 9.— Guidance material on the different means used to assess competence can be found in the Attachment C to Chapter 2 of the Procedures for Air Navigation Services — Training *(PANS-TRG, Doc 9868).*

Note 10.— Procedures for upset prevention and recovery training in a flight simulation training device are contained in the Procedures for Air Navigation Services — Training *(PANS-TRG, Doc 9868).*

Note 11.— Guidance on upset prevention and recovery training in a flight simulation training device is contained in Operations Circular 6 of 2018and the Manual on Aeroplane Upset Prevention and Recovery Training *(Doc 10011).*

Note 12 – Flight crew training requirements for scheduled operators, SCAs and NSOPs for large and small aeroplanes are specified in CARs Section 8 Series F Part II, VII and VIII.

9.3.2 The requirement for recurrent flight training in a particular type of aeroplane shall be considered fulfilled by:

a) the use, to the extent deemed feasible by the State of the Operator, of flight simulation training devices approved by DGCA for that purpose; or

b) the completion within the appropriate period of the proficiency check required by 9.4.4 in that type of aeroplane.

9.4 Qualifications

Note.— See the Manual of Procedures for the Establishment of a State's Personnel Licensing System *(Doc 9379) for guidance of a general nature on cross-crew qualification, mixed- fleet flying and cross-credit.*

9.4.1 Recent experience — pilot-in-command and co-pilot

9.4.1.1 An operator shall not assign a pilot-in-command or a co-pilot to operate at the flight controls of a type or variant of a type of aeroplane during take-off and landing unless that pilot has operated the flight controls during at least three take-offs and landings within the preceding 90 days on the same type of aeroplane or in a flight simulator approved for the purpose.

9.4.1.2 When a pilot-in-command or a co-pilot is flying several variants of the same type of aeroplane or different types of aeroplanes with similar characteristics in terms of operating procedures, systems and handling, DGCA shall decide under which conditions the requirements of 9.4.1.1 for each variant or each type of aeroplane can be combined.

9.4.2 Intentionally Left Blank

9.4.3 Pilot-in-command area, route and aerodrome qualification

9.4.3.1 An operator shall not utilize a pilot as pilot-in-command of an aeroplane on a route or route segment for which that pilot is not currently qualified until such pilot has complied with 9.4.3.2 and 9.4.3.3.

9.4.3.2 Each such pilot shall demonstrate to the operator an adequate knowledge of:

a) the route to be flown, and the aerodromes which are to be used. This shall include knowledge of:

1. the terrain and minimum safe altitudes;
2. the seasonal meteorological conditions;
3. the meteorological, communication and air traffic facilities, services and procedures;
4. the search and rescue procedures; and
5. the navigational facilities and procedures, including any long- range navigation procedures, associated with the route along which the flight is to take place; and

b) Procedures applicable to flight paths over heavily populated areas and areas of high air traffic density, obstructions, physical layout, lighting, approach aids and arrival, departure, holding and instrument approach procedures, and applicable operating minima.

Note- That portion of the demonstration relating to arrival, departure, holding and instrument approach procedures may be accomplished in an appropriate training device which is adequate for this purpose.

9.4.3.3 A pilot-in-command shall have made an actual approach into each aerodrome of landing on the route, accompanied by a pilot who is qualified for the aerodrome, as a member of the flight crew or as an observer on the flight deck, unless:

a) the approach to the aerodrome is not over difficult terrain and the instrument approach procedures and aids available are similar to those with which the pilot is familiar, and a margin approved by DGCA is added to the normal operating minima, or there is reasonable certainty that approach and landing can be made in visual meteorological conditions; or

b) the descent from the initial approach altitude can be made by day in visual meteorological conditions; or

c) the operator qualifies the pilot-in-command to land at the aerodrome concerned by means of an adequate pictorial presentation; or

d) d) the aerodrome concerned is adjacent to another aerodrome at which the pilot in-command is currently qualified to land.

9.4.3.4 The operator shall maintain a record, sufficient to satisfy DGCA of the qualification of the pilot and of the manner in which such qualification has been achieved.

9.4.3.5 An operator shall not continue to utilize a pilot as a pilot-in-command on a route or within an area specified by the operator and approved by DGCA unless, within the preceding

12 months, that pilot has made at least one trip as a pilot member of the flight crew, or as a check pilot, or as an observer in the flight crew compartment:

a) within that specified area; and

b) if appropriate, on any route where procedures associated with that route or with any aerodromes intended to be used for take-off or landing require the application of special skills or knowledge.

9.4.3.6 In the event that more than 12 months elapse in which a pilot-in-command has not made such a trip on a route in close proximity and over similar terrain, within such a specified area, route or aerodrome, and has not practiced such procedures in a training device which is adequate for this purpose, prior to again serving as a pilot- in-command within that area or on that route, that pilot must requalify in accordance with 9.4.3.2 and 9.4.3.3.

9.4.4 **Pilot proficiency checks**

9.4.4.1 Refer CAR Section 8 Series F Part II, VII, VIII

9.4.4.2 Refer CAR Section 8 Series F Part II, VII, VIII

9.4.5 **Single pilot operations under the instrument flight rules (IFR)**

9.4.5.1 The prescribed requirements of experience, recency and training applicable to single pilot operations intended to be carried out under the IFR shall be followed.

9.4.5.2 The pilot-in-command shall:

a) for operations under the IFR or at night, have accumulated at least 50 hours flight time on the class of aeroplane, of which at least 10 hours shall be as pilot-in- command;
b) for operations under the IFR, have accumulated at least 25 hours flight time under the IFR on the class of aeroplane, which may form part of the 50 hours flight time in sub-paragraph a);

c) for operations at night, have accumulated at least 15 hours flight time at night, which may form part of the 50 hours flight time in sub-paragraph a);

d) for operations under the IFR, have acquired recent experience as a pilot engaged in a single pilot operation under the IFR of:

i) at least five IFR flights, including three instrument approaches carried out during the preceding 90 days on the class of aeroplane in the single pilot role; or

ii) an IFR instrument approach check carried out on such an aeroplane during the preceding 90 days;

e) for operations at night, have made at least three takeoffs and landings at night on the class of aeroplane in the single pilot role in the preceding 90 days; and

f) have successfully completed training programmes that include, in addition to the requirements of 9.3, passenger briefing with respect to emergency evacuation, autopilot management, and the use of simplified in-flight documentation.

9.4.5.3 The initial and recurrent flight training and proficiency checks indicated in 9.3.1 and 9.4.4 shall be performed by the pilot-in-command in the single pilot role on the class of aeroplane in an environment representative of the operation.

9.5 Flight crew equipment

A flight crew member assessed as fit to exercise the privileges of a licence, subject to the use of suitable correcting lenses, shall have a spare set of the correcting lenses readily available when exercising those privileges.

10 FLIGHT OPERATIONS OFFICER/ FLIGHT DISPATCHER

10.1 Flight operations officer/flight dispatcher, employed by the organisation shall be approved by DGCA in accordance with the provisions of CAR Section 7 Series M Part II.

10.2 Refer CAR Section 7 Series M Part II.

10.3 A flight operations officer/flight dispatcher shall not be assigned to duty unless that person has:

a) satisfactorily completed an operator-specific training course that addresses all the specific components of its approved method of control and supervision of flight operations specified in 4.2.1.3;

Note.— Guidance on the composition of such training syllabi is provided in the Training Manual (*Doc 7192), Part D-3* — Flight Operations Officers/ Flight Dispatchers.

b) made, within the preceding 12 months, at least a one- way qualification flight in the flight crew compartment of an aeroplane over any area for which that individual is authorized to exercise flight supervision. The flight should include landings at as many aerodromes as practicable;

Note.— For the purpose of the qualification flight, the flight operations officer/flight dispatcher must be able to monitor the flight crew intercommunication system and radio communications, and be able to observe the actions of the flight crew.

c) demonstrated to the operator a knowledge of:

1) the contents of the operations manual

2) the radio equipment in the aeroplanes used; and

3) the navigation equipment in the aeroplanes used;

d) demonstrated to the operator a knowledge of the following details concerning operations for which the officer is responsible and areas in which that individual is authorized to exercise flight supervision:

1) the seasonal meteorological conditions and the sources of meteorological information;

2) the effects of meteorological conditions on radio reception in the aeroplanes used;
3) the peculiarities and limitations of each navigation system which is used by the operation; and

4) the aeroplane loading instructions;

e) demonstrated to the operator knowledge and skills related to human performance relevant to dispatch duties; and

f) demonstrated to the operator the ability to perform the duties specified in 4.6.

10.4 A flight operations officer/ flight dispatcher assigned to duty should maintain complete familiarization with all features of the operation which are pertinent to such duties, including knowledge and skills related to human performance.

Note.— Guidance material to design training programmes to develop knowledge and skills in human performance can be found in the Human Factors Training Manual *(Doc 9683)*.

10.5 A flight operations officer/flight dispatcher should not be assigned to duty after 12 consecutive months of absence from such duty, unless the provisions of Para 10.3 are met.

11 MANUALS, LOGS AND RECORDS

Note.— The following additional manuals, logs and records are associated with this Part but are not included in this section:

Fuel and oil records — see 4.2.10

Maintenance records — see 8.4

Flight time records — see CAR Section 7 Series J

Flight preparation forms — see 4.3

Operational flight plan — see 4.3.3.1

Pilot-in-command route and airport qualification records — see 9.4.3.4

11.1 Flight manual

The flight manual shall be updated by implementing changes made mandatory by the State of Registry.

11.2 Operator's CAME

The operator's CAME provided in accordance with 8.2, which may be issued in separate parts, shall contain the following information:

a) a description of the procedures required by 8.1.1 including, when applicable:

1) a description of the administrative arrangements between the operator and the approved maintenance organization;

2) a description of the maintenance procedures and the procedures for completing and signing a maintenance release when maintenance is based on a system other than that of an approved maintenance organization.

b) names and duties of the person or persons required by 8.1.4;

c) a reference to the maintenance programme required by 8.3.1;

d) a description of the methods used for the completion and retention of the operator's maintenance records required by 8.4;

e) a description of the procedures for monitoring, assessing and reporting maintenance and operational experience required by 8.5.1;

f) a description of the procedures for complying with the service information reporting requirements of Annex 8, Part II, 4.2.3 f) and 4.2.4;

g) a description of procedures for assessing continuing airworthiness information and implementing any resulting actions, as required by 8.5.2;

h) a description of the procedures for implementing action resulting from mandatory continuing airworthiness information;

i) a description of establishing and maintaining a system of analysis and continued monitoring of the performance and efficiency of the maintenance programme, in order to correct any deficiency in that programme;

j) a description of aircraft types and models to which the manual applies;

k) a description of procedures for ensuring that un-service abilities affecting airworthiness are recorded and rectified; and

l) a description of the procedures for advising the State of Registry of significant in- service occurrences

11.3 Maintenance programme

11.3.1 A maintenance programme for each aeroplane as required by 8.3 shall contain the following information:

a) maintenance tasks and the intervals at which these are to be performed, taking into account the anticipated utilization of the aeroplane;

b) when applicable, a continuing structural integrity programme;

c) procedures for changing or deviating from a) and b) above; and

d) when applicable, condition monitoring and reliability programme descriptions for aircraft systems, components and powerplants.

11.3.2 Maintenance tasks and intervals that have been specified as mandatory in approval of the type design shall be identified as such.

11.3.3 The maintenance programme should be based on maintenance programme information made available by the State of Design or by the organization responsible for the type design, and any additional applicable experience.

11.4 Journey Log Book

11.4.1 The aeroplane journey log book should contain the following items and the corresponding roman numerals:

I -- Aeroplane nationality and registration

II -- Date

III -- Names of crew members
IV -- Duty assignments of crew members
V -- Place of departure
VI -- Place of arrival
VII -- Time of departure
VIII -- Time of arrival
IX -- Hours of flight
X -- Nature of flight (private, aerial work, scheduled or non-scheduled).
XI -- Incidents, observations, if any
XII -- Signature of person in charge

11.4.2 Entries in the journey log book should be made currently and in ink or indelible pencil.

11.4.3 Completed journey log book should be retained to provide a continuous record of the last two years operations.

Note1- The details of contents of journey log book are given in CAR Section 2, Series 'X' Part VI.
Note2- Use of electronic journey log book, technical log/flight log or Flight Report Book shall require approval as per CAR Section 8Series S Part VIII
Note 3- Guidance for electronic logbook, electronic signature, records and documents is given in AAC4 of 2023.

11.5 Records of emergency and survival equipment carried

Operators shall at all times have available for immediate communication to rescue coordination centers, lists containing information on the emergency and survival equipment carried on board any of their aeroplanes engaged in international air navigation. The information shall include, as applicable, the number, colour and type of life rafts and pyrotechnics, details of emergency medical supplies, water supplies and the type and frequencies of the emergency portable radio equipment.

11.6 Flight Recorder Records:

An operator 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, their retention in safe custody pending their disposition as determined by DGCA.

12 CABIN CREW

12.1 Assignment of emergency duties

An operator shall provide adequate number of cabin crew in accordance with Rule 38Bof the Aircraft Rules 1937, in order to effect a safe and expeditious evacuation of the aeroplane, and the necessary functions to be performed in an emergency or a situation requiring emergency evacuation. The operator shall assign these functions for each type of aeroplane.

12.2 Cabin crew at emergency evacuation stations

Each cabin crew member assigned to emergency evacuation duties shall occupy a seat provided in accordance with 6.16 during take-off and landing and whenever the pilot-in-command so directs.

12.3 Protection of cabin crew during flight

Each cabin crew member shall be seated with seat belt or, when provided, safety harness fastened during take-off and landing and whenever the pilot-in- command so directs.

Note.— The foregoing does not preclude the pilot-in-command from directing the fastening of the seat belt only, at times other than during take-off and landing.

12.4 Training

An operator shall establish and maintain a training programme, approved by DGCA, to be completed by all persons before being assigned as a cabin crew member. Cabin crew members shall complete a recurrent training programme annually. These training programmes shall ensure that each person is:

a) competent to execute those safety duties and functions which the cabin crew member is assigned to perform in the event of an emergency or in a situation requiring emergency evacuation;

b) drilled and capable in the use of emergency and life-saving equipment required to be carried, such as life jackets, life rafts, evacuation slides, emergency exits, portable fire extinguishers, oxygen equipment, first-aid and universal precaution kits, automated external defibrillators;

c) when serving on aeroplanes operated above 3000 m (10000 ft), knowledgeable as regards the effect of lack of oxygen and, in the case of pressurized aeroplanes, as regards physiological phenomena accompanying a loss of pressurization;

d) aware of other crew members' assignments and functions in the event of an emergency so far as is necessary for the fulfilment of the cabin crew members' own duties:

e) aware of the types of dangerous goods which may, and may not, be carried in a passenger cabin; and

f) knowledgeable about human performance as related to passenger cabin safety duties including flight crew-cabin crew members coordination.

Note 1.- Requirements for the training of cabin crew members in the transport of dangerous goods are included in the Dangerous Goods Training Programme contained in CAR Section 11 Series C Part I — The Safe Transport of Dangerous Goods by Air and the Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284).

Note 2.— For more information on dangerous goods operational requirements see Chapter 14.

Note 3.— Guidance material to design training programmes to develop knowledge and skills in human performance can be found in the Human Factors Training Manual*(Doc 9683).*

Note 4, – Cabin crew training requirements are specified in CAR Section 7 Series M Part I

13. SECURITY

In the context of this CAR, the word security is used in the sense of prevention of illicit acts against civil aviation.

13.1 Domestic commercial operations

The security requirements contained in this paragraph shall be followed in respect of domestic and international air transport operations.

13.2 Security of the flight crew compartment

13.2.1 In all aeroplanes which are equipped with a flight crew compartment door, this door shall be capable of being locked, and means shall be provided by which cabin crew can discreetly notify the flight crew in the event of suspicious activity or security breaches in the cabin.

13.2.2 All passenger-carrying aeroplanes

a) of a maximum certificated take-off mass in excess of 54 500 kg; or

b) of a maximum certificated take-off mass in excess of 45 500 kg with a passenger seating capacity greater than 19; or

c) with a passenger seating capacity greater than 60 shall be equipped with an approved flight crew compartment door that is designed to resist penetration by small arms fire and grenade shrapnel, and to resist forcible intrusions by unauthorized persons. This door shall be capable of being locked and unlocked from either pilot's station.

13.2.3 In all aeroplanes which are equipped with a flight crew compartment door in accordance with 13.2.2:

a) this door shall be closed and locked from the time all external doors are closed following embarkation until any such door is opened for disembarkation, except when necessary to permit access and egress by authorized persons; and

b) means shall be provided for monitoring from either pilot's station the entire door area outside the flight crew compartment to identify persons requesting entry and to detect suspicious behavior or potential threat. All new aircraft to be imported after 1st of Jan, 2008 should have cockpit door surveillance system (CDSS) installed at the time of import. Aircraft already importing should comply with this requirement during their next 'C' check falling after 1st Jan, 2008.

13.2.4 All passenger-carrying aeroplanes should be equipped with an approved flight crew compartment door, where practicable, that is designed to resist penetration by small arms fire and grenade shrapnel and to resist forcible intrusions by unauthorized persons. This door should be capable of being locked and unlocked from either pilot's station.

13.2.5 In all aeroplanes which are equipped with a flight crew compartment door in accordance with 13.2.4:

a) the door should be closed and locked from the time all external doors are closed following embarkation until any such door is opened for disembarkation, except when necessary to permit access and egress by authorized persons; and

b) means should be provided for monitoring from either pilot's station the entire door area outside the flight crew compartment to identify persons requesting entry and to detect suspicious behaviour or potential threat.

13.3 Aeroplane search procedure checklist

An operator shall ensure that there is on board a checklist of the procedures to be followed in searching for a bomb in case of suspected sabotage and for inspecting aeroplanes for concealed weapons, explosives or other dangerous devices when a well- founded suspicion exists that the aeroplane may be the object of an act of unlawful interference. The checklist shall be supported by guidance on the appropriate course of action to be taken should a bomb or suspicious object be found and information on the least-risk bomb location specific to the aeroplane.

13.4 Training programmes

13.4.1 An operator shall establish and maintain an approved security training programme which ensures crew members act in the most appropriate manner to minimize the consequences of acts of unlawful interference. As a minimum, this programme shall include the following elements:

a) determination of the seriousness of any occurrence;

b) crew communication and coordination;

c) appropriate self-defense responses;

d) use of non-lethal protective devices assigned to crew members;

e) understanding of behavior of terrorists so as to facilitate the ability of crew members to cope with hijacker behavior and passenger responses;

f) live situational training exercises regarding various threat conditions;

g) flight deck procedures to protect the aeroplane; and

h) aeroplane search procedures and guidance on least-risk bomb locations where practicable.

13.4.2 An operator shall also establish and maintain a training programme to acquaint appropriate employees with preventive measures and techniques in relation to passengers, baggage, cargo, mail, equipment, stores and supplies intended for carriage on an aeroplane so that they contribute to the prevention of acts of sabotage or other forms of unlawful interference.

13.5 Reporting acts of unlawful interference

Following an act of unlawful interference, the pilot-in-command shall submit, without delay, a report of such an act to the BCAS in New Delhi.

13.6 Miscellaneous

13.6.1 Specialized means of attenuating and directing the blast should be provided for use at the least-risk bomb location.

13.6.2 Where an operator accepts the carriage of weapons removed from passengers, the aeroplane should have provision for stowing such weapons in a place so that they are inaccessible to any person during flight time.

14. DANGEROUS GOODS

14.1 State Responsibilities

Note 1.— Annex 18, Chapter 11, contains requirements for each Contracting State to establish oversight procedures for all entities (including packers, shippers, ground handling agents and operators) performing dangerous goods functions.

Note 2.— Operator responsibilities for the transport of dangerous goods are contained in CAR Section 11 Series E Part 1. Technical Instructions for the Safe Transport of Dangerous Goods by Air *(Doc 9284) (Technical Instructions) contains the operator's responsibilities and requirements for incident and accident reporting.*

Note 3.— The requirements pertaining to crew members or passengers carrying dangerous goods on aircraft are set forth in Part 8, Chapter 1, of the Technical Instructions.

Note 4.— COMAT that meets the classification criteria of the Technical Instructions for dangerous goods are considered cargo and must be transported in accordance with Part 1;2.2.2 or Part 1;2.2.3 of the Technical Instructions (e.g. aircraft parts such as chemical oxygen generators, fuel control units, fire extinguishers, oils, lubricants, cleaning products).

14.2 Operators with No specific Approval for the transport of dangerous goods as cargo

DGCA shall ensure that Operators with no specific approval to transport dangerous goods have:

a) established a dangerous goods training programme that meets the requirements of CAR Section 11 Series C Part 1, the applicable requirements of the Technical Instructions, Part 1, Chapter 4 and the requirements as contained in the Aircraft (Carriage of Dangerous Goods), Rules 2003, as appropriate. Details of the dangerous goods training programme shall be included in the operator's operations manuals;

b) established dangerous goods policies and procedures in its operations manual to meet, at a minimum, the requirements of Annex 18, the Technical Instructions and the Aircraft (Carriage of Dangerous Goods), Rules, 2003to allow operator personnel to:

1) identify and reject undeclared dangerous goods, including COMAT classified as dangerous goods; and

2) report to the DGCA and the State in which it occurred any;

i) occasions when undeclared dangerous goods are discovered in cargo or mail; and

ii) dangerous goods accidents and incidents.

14.3 Operators with a Specific Approval for the Transport of Dangerous Goods as Cargo

DGCA shall issue a specific approval for the transport of dangerous goods and ensure that the operator:

a) establishes a dangerous goods training p rogramme that meets the requirements in the Technical Instructions, Part 1, Chapter 4, Table 1-4 and the requirements of the

Aircraft (Carriage of Dangerous Goods) Rules, 2026, as appropriate. Details of the dangerous goods training programme shall be included in the operator's operations manuals.

b) establishes dangerous goods policies and procedures in its operations manual to meet, at a minimum, the requirements of Annex 18, the Technical Instructions and the Aircraft (Carriage of Dangerous Goods) Rules, 2026 to enable operator personnel to:

1. identify and reject undeclared or mis-declared dangerous goods, including COMAT classified as dangerous goods;

2. report to the DGCA and the State in which it occurred any;

   (i) occasions when undeclared or mis-declared dangerous goods are discovered in cargo or mail; and
   (ii) dangerous goods accidents and incidents;

3. report to the DGCA and the State of Origin any occasions when dangerous goods are discovered to have been carried;

   (i) when not loaded, segregated, separated or secured in accordance with the Technical Instructions Part 7, Chapter 2; and
   (ii) without information having been provided to the pilot-in- command;

4. accept, handle, store, transport, load and unload dangerous goods, including COMAT classified as dangerous goods as cargo on board an aircraft; and

5. provide the pilot-in-command with accurate and legible written or printed information concerning dangerous goods that are to be carried as cargo.

Note.— Article 35 of the Convention refers to certain classes of cargo restrictions.

14.4 Provision of information

The operator shall ensure that all personnel, including third-party personnel, involved in the acceptance, handling, loading and unloading of cargo are informed of the operator's specific approval and limitations with regard to the transport of dangerous goods.

14.5 Intentionally Left Blank

15. CARGO COMPARTMENT SAFETY

Note: Guidance on the hazards associated with the transport of items in the cargo compartment, the conduct of a specific safety risk assessment in accordance with the Safety Management Manual (SMM) (Doc 9859), and the responsibilities for the transport of dangerous goods is contained in the Cargo Compartment Operational Safety Manual (Doc 10102).

15.1 Transport of items in the cargo compartment

DGCA shall ensure that the Operator establishes policy and procedures for the transport of items in the cargo compartment, which include the conduct of a specific safety risk assessment. The risk assessment shall include at least the:

a) hazards associated with the properties of the items to be transported;
b) capabilities of the operator;
c) operational considerations (e.g. area of operations, diversion time);
d) capabilities of the aeroplane and its systems (e.g. cargo compartment fire suppression capabilities);
e) containment characteristics of unit load devices;
f) packing and packaging;
g) safety of the supply chain for items to be transported; and
h) quantity and distribution of dangerous goods items to be transported.

Note: Additional operational requirements for the transport of dangerous goods are contained in Para 14.

15.2 Fire protection

15.2.1 The elements of the cargo compartment (s) fire protection system as approved by the state of design or state of registry, and a summary of the demonstrated cargo compartment fire protection certification standards, shall be provided in the aeroplane flight manual or other documentation supporting the operation of the aeroplane.

Note: Guidance on the elements of cargo compartment fire protection and associated demonstrated standards are provided in the Cargo Compartment Operational Safety Manual (Doc 10102).

15.2.2 The Operator shall establish policy and procedures that address the items to be transported in the cargo compartment. These shall ensure to a reasonable certainty that in the event of a fire involving those items, it can be detected and sufficiently suppressed or contained by the

elements of the aeroplane design associated with cargo compartment fire protection, until the aeroplane makes a safe landing.

Note: Guidance on policy and procedures that address the items to be transported in the cargo compartment are provided in the Cargo Compartment Operational Safety Manual (Doc 10102).

-Sd-

(**Vir Vikram Yadav)**
Director General of Civil Aviation

Appendix 1

LIGHTS TO BE DISPLAYED BY AEROPLANES

(Refer Appendix 6 of CAR Section 9, Series C Part I)

ORGANIZATION AND CONTENTS OF AN OPERATIONS MANUAL

(Refer CAR Section 8, Series O Part VII)

ADDITIONAL REQUIREMENTS FOR APPROVED OPERATIONS BY SINGLE- ENGINE TURBINE-POWERED AEROPLANES AT NIGHT AND/OR IN INSTRUMENT METEOROLOGICAL CONDITIONS (IMC)

(See Para 5, 5.4.1)

Airworthiness and operational requirements provided in accordance with Para 5.4.1, shall satisfy the following:

1. Turbine engine reliability

1.1 Turbine engine reliability shall be shown to have a power loss rate of less than 1 per 100 000 engine hours.

Note.-- Power loss in this context is defined as any loss of power, the cause of which may be traced to faulty engine or engine component design or installation, including design or installation of the fuel ancillary or engine control systems.

1.2 The operator shall be responsible for engine trend monitoring.

1.3 To minimize the probability of in-flight engine failure, the engine shall be equipped with:

a) an ignition system that activates automatically, or is capable of being operated manually, for take-off and landing, and during flight, in visible moisture;

b) a magnetic particle detection or equivalent system that monitors the engine, accessories gearbox, and reduction gearbox, and which includes a flight deck caution indication; and

c) an emergency engine power control device that permits continuing operation of the engine through a sufficient power range to safely complete the flight in the event of any reasonably probable failure of the fuel control unit.

2. Systems and equipment

Single-engine turbine-powered aeroplanes approved to operate at night and/or in IMC shall be equipped with the following systems and equipment intended to ensure continued safe flight and to assist in achieving a safe forced landing after an engine failure, under all allowable operating conditions:

a) two separate electrical generating systems, each one capable of supplying all probable combinations of continuous in-flight electrical loads for instruments, equipment and systems required at night and/or in IMC;

b) a radio altimeter;

c) an emergency electrical supply system of sufficient capacity and endurance, following loss of all generated power, to as a minimum:

1) maintain the operation of all essential flight instruments, communication and navigation systems during a descent from the maximum certificated altitude in a glide configuration to the completion of a landing;
2) lower the flaps and landing gear, if applicable;
3) provide power to one pitot heater, which must serve an air speed indicator clearly visible to the pilot;
4) provide for operation of the landing light specified in 2 j);
5) provide for one engine restart, if applicable; and 6) provide for the operation of the radio altimeter;

d) two attitude indicators, powered from independent sources;

e) a means to provide for at least one attempt at engine re-start;

f) airborne weather radar;

g) a certified area navigation system capable of being programmed with the positions of aerodromes and safe forced landing areas, and providing instantly available track and distance information to those locations;

h) for passenger operations, passenger seats and mounts which meet dynamically- tested performance standards and which are fitted with a shoulder harness or a safety belt with a diagonal shoulder strap for each passenger seat;

i) in pressurized aeroplanes, sufficient supplemental oxygen for all occupants for descent following engine failure at the maximum glide performance from the maximum certificated altitude to an altitude at which supplemental oxygen is no longer required;

j) a landing light that is independent of the landing gear and is capable of adequately illuminating the touchdown area in a night forced landing; and

k) an engine fire warning system.

3. Minimum equipment list

DGCA may require the minimum equipment list of an operator approved in accordance with para 5.4 to specify the operating equipment required for night and/or IMC operations, and for day/VMC operations.

4. Flight manual information

The flight manual shall include limitations, procedures, approval status and other information relevant to operations by single-engine turbine-powered aeroplanes at night and/or in IMC.

5. Event reporting

5.1 An operator approved for operations by single-engine turbine-powered aeroplanes at night and/or in IMC shall report all significant failures, malfunctions or defects to DGCA who in turn will notify the State of Design.

5.2 DGCA may review the safety data and monitor the reliability information so as to be able to take any actions necessary to ensure that the intended safety level is achieved. DGCA may notify major events or trends of particular concern to the appropriate Type Certificate Holder and the State of Design.

6. Operator planning

6.1 Operator route planning shall take account of all relevant information in the assessment of intended mutes or areas of operations, including the following:

a) the nature of the terrain to be overflown, including the potential for carrying out a safe forced landing in the event of an engine failure or major malfunction;
b) weather information, including seasonal and other adverse meteorological influences that may affect the flight; and
c) other criteria and limitations as specified by DGCA.

6.2 An operator shall identify aerodromes or safe forced landing areas available for use in the event of engine failure, and the position of these shall be programmed into area navigation system.

Note 1. A 'safe' forced landing in this context means a landing in an area at which it can reasonably be expected that it will not lead to serious injury or loss of life, even though the aeroplane may incur extensive damage.

Note 2.-- Operation over routes and in weather conditions that permit a safe forced landing in the event of an engine failure, as specified in para 5.1.2, is not required by Appendix 3, 6.1 and 6.2 for aeroplanes approved in accordance with para 5.4. The availability of forced landing areas at all points along a route is not specified for these aeroplanes because of the very high engine reliability, additional systems and operational equipment, procedures and training requirements specified in this Appendix.

7. Flight crew experience, training and checking

7.1 DGCA may prescribe the minimum flight crew experience required for night/IMC operations by single-engine turbine-powered aeroplanes.

7.2 An operator's flight crew training and checking shall be appropriate to night and/or IMC operations by single-engine turbine-powered aeroplanes, covering normal, abnormal and emergency procedures and, in particular, engine failure, including descent to a forced landing in night and/or in IMC conditions.

8. Route limitations over water

DGCA may apply route limitation criteria for single-engine turbine-powered aeroplanes operating at night and/or in IMC on over water operations if beyond gliding distance from an area suitable for a safe forced landing/ditching having regard to the characteristics of the aeroplane, seasonal weather influences, including likely sea state and temperature, and the availability of search and rescue services.

9. Operator certification or validation

The operator shall demonstrate the ability to conduct operations by single-engine turbine- powered aeroplanes at night and/or in IMC through a certification and approval process specified by the State of the Operator.

Note.- Guidance on the airworthiness and operational requirements is contained in Attachment F.

Appendix 4

ALTIMETRY SYSTEM PERFORMANCE REQUIREMENTS FOR OPERATIONS IN RVSM AIRSPACE

(See Para 7, 7.2.7)

1. In respect of groups of aeroplanes that are nominally of identical design and build with respect to all details that could influence the accuracy of height-keeping performance, the height-keeping performance capability shall be such that the total vertical error (TVE) for the group of airplanes shall have a mean no greater than 25 m (80 ft) in magnitude and shall have a standard deviation no greater than $28 – 0.013z^2$ for $0 \leq z \leq 25$ when z is the magnitude of the mean TVE in metres, or $92 – 0.004z^2$ for $0 \leq z \leq 80$ where z is in feet. In addition, the components of TVE shall have the following characteristics:

   a) the mean altimetry system error (ASE) of the group shall not exceed 25 m (80 ft) in magnitude;

   b) the sum of the absolute value of the mean ASE and of three standard deviations of ASE shall not exceed 75 m (245 ft); and

   c) the differences between cleared flight level and the indicated pressure altitude actually flown shall be symmetric about a mean of 0 m, with a standard deviation no greater than 13.3 m (43.7 ft), and in addition, the decrease in the frequency of differences with increasing difference magnitude shall be at least exponential.

2. In respect of aeroplanes for which the characteristics of the airframe and altimetry system fit are unique and so cannot be classified as belonging to a group of aeroplanes encompassed by paragraph 1, the height-keeping performance capability shall be such that the components of the TVE of the aeroplane have the following characteristics:

   a) the ASE of the aeroplane shall not exceed 60 m (200 ft) in magnitude under all flight conditions; and

   b) the differences between the cleared flight level and the indicated pressure altitude actually flown shall be symmetric about a mean of 0 m, with a standard deviation no greater than 13.3 m (43.7 ft), and in addition, the decrease in the frequency of differences with increasing difference magnitude shall be at least exponential.

Appendix 5

SAFETY OVERSIGHT OF AIR OPERATORS

(See Para 4, 4.2.1.8)

Refer Rules 82 and 156 of The Aircraft Rule 1937– India

Appendix 6

AIR OPERATOR CERTIFICATE (AOC)

(See Para 4, 4.2.1.5 and 4.2.1.6)

1. Purpose and Scope

1.1 The AOC and its associated model specific operations specifications shall contain the minimum information required in paragraphs 2 and 3 respectively, in a standardized format.

1.2 The air operator certificate and its associated operations specifications shall define the operations for which the operator is authorized.

Note.— Attachment C, paragraph 3.2.2, contains additional information that may be listed in the operations specifications associated with the air operator certificate.

2. AOC Template

Note.— para 6, 6.1.2, requires a certified true copy of the AOC to be carried aboard.

<table>
<tr><td colspan="3">AIR OPERATOR CERTIFICATE</td></tr>
<tr><td>[1]</td><td>STATE OF THE OPERATOR[2]</td><td>[1]</td></tr>
<tr><td></td><td>ISSUING AUTHORITY[3]</td><td></td></tr>
<tr><td>AOC #[4]:
Expiry date[5]:</td><td>OPERATOR NAME[6]

Dba trading name[7]:
Operator address[8]:
Telephone[9]:
Fax:
Email:</td><td>OPERATIONAL POINTS OF CONTACT[10]

Contact details, at which operational management can be contacted without undue delay, are listed in [11].</td></tr>
<tr><td colspan="3">This certificate certifies that _____ [12] is authorized to perform commercial air operations, as defined in the attached operations specifications, in accordance with the operations manual and the _____ [13] .</td></tr>
<tr><td>Date of issue[14]:</td><td colspan="2">Name and signature[15]:
Title:</td></tr>
</table>

1. *For use of the State of the Operator.*
2. *Replace by the name of the State of the Operator.*
3. *Replace by the identification of the issuing authority of the State of the Operator.*
4. *Unique AOC number, as issued by the State of the Operator.*

5. *Date after which the AOC ceases to be valid (dd-mm-yyyy).*
6. *Replace by the operator's registered name.*
7. *Operator's trading name, if different. Insert "dba" before the trading name (for "doing business as").*
8. *Operator's principal place of business address.*
9. *Operator's principal place of business telephone and fax details, including the country code. Email to be provided if available.*
10. *The contact details include the telephone and fax numbers, including the country code, and the email address (if available) at which operational management can be contacted without undue delay for issues related to flight operations, airworthiness, flight and cabin crew competency, dangerous goods and other matters, as appropriate.*
11. *Insert the controlled document, carried on board, in which the contact details are listed, with the appropriate paragraph or page reference, e.g.: "Contact details are listed in the operations manual, Gen/Basic, Chapter 1, 1.1" or "… are listed in the operations specifications, page 1" or "… are listed in an attachment to this document".*
12. *Operator's registered name.*
13. *Insertion of reference to the appropriate civil aviation regulations.*
14. *Issuance date of the AOC (dd-mm-yyyy).*
15. *Title, name and signature of the authority representative. In addition, an official stamp may be applied on the AOC.*

3. Operations Specifications for each aircraft model

Note.— para 6, 6.1.2, requires a copy of the operations specifications of this section to be carried aboard.

3.1 For each aircraft model in the operator's fleet, identified by aircraft make, model and series, the following list of authorizations, conditions and limitations shall be included: issuing authority contact details, operator name and AOC number, date of issue and signature of the authority representative, aircraft model, types and area of operations, special limitations and specific approvals.

Note.— If specific approvals and limitations are identical for two or more models, these models may be grouped in a single list.

3.2 The operations specifications layout referred to in para 4, 4.2.1.6, shall be as follows:

Note.1— The MEL constitutes an integral part of the operations manual.
Note. 2 — Air Operator Certification procedure is laid down in CAP 3100/3300.

OPERATIONS SPECIFICATIONS

(subject to the approved conditions in the operations manual)

ISSUING AUTHORITY CONTACT DETAILS[1]

Telephone: _____ Fax: _____ Email: _____

AOC#[2]: _____ Operator name[3]: _____ Date[4]: _____ Signature: _____

Dba trading name[3]: _____

Aircraft model[5]:

Types of operation: Commercial air transportation ☐Passengers ☐ Cargo ☐ Other[6]: _____

Area(s) of operation[7]:

Special limitations[8]:

SPECIFIC APPROVAL	YES	NO	DESCRIPTION [9]	REMARKS
Dangerous goods	☐	☐		
Low visibility operations				
Approach and landing	☐	☐	CAT[10]: _____ RVR: _____ m DH: _____ ft	
Take-off	☐	☐	RVR[11]: _____ m	
Operational credit(s)	☐	☐	[12]	
RVSM[13] ☐ N/A	☐	☐		
EDTO[14] ☐ N/A	☐	☐	Threshold time[15]: _____ minutes Maximum diversion time[15]: _____ minutes	
AR navigation specifications for PBN operations	☐	☐	[16]	
Continuing airworthiness	X	X	[17]	
EFB	☐	☐	[18]	
Other [19]	☐	☐		

Notes.—

1. *Telephone contact details of the authority, including the country code. Email and fax to be provided if available.*

2. *Insert the associated AOC number.*

3. *Insert the operator's registered name and the operator's trading name, if different. Insert "dba" before the trading name (for "doing business as").*

4. *Issuance date of the operations specifications (dd-mm-yyyy) and signature of the authority representative.*

5. *Insert the Commercial Aviation Safety Team (CAST)/ICAO designation of the aircraft make, model and series, or master series, if a series has been designated (e.g. Boeing- 737-3K2 or Boeing-777-232). The CAST/ICAO taxonomy is available at: http://www.intlaviationstandards.org/.*

6. *Other type of transportation to be specified (e.g. emergency medical service).*

7. *List the area(s) of authorized operation (by geographical coordinates or specific routes, flight information region or national or regional boundaries), including any limitations related to aerodrome elevations (such as high elevation aerodrome (HEA)), – as clearly defined by the issuing authority, and indicating any designated airspace requiring approval (such as the North Atlantic High Level Airspace (NAT HLA)). The authorized area(s) of operation may be issued in attachments to the operations specifications.*

8. *List the applicable special limitations (e.g. VFR only, day only).*

9. *List in this column the most permissive criteria for each specific approval (with appropriate criteria).*

10. *Insert the applicable precision approach category (CAT II or III). Insert the minimum RVR in metres and decision height in feet. One line is used per listed approach category.*

11. *Insert the approved minimum take-off RVR in metres, or the equivalent horizontal visibility if RVR is not used. One line per approval may be used if different approvals are granted.*

12. *List the airborne capabilities (e.g. automatic landing, HUD, EVS, SVS, CVS) and associated operational credit(s) granted.*

13. *"Not applicable (N/A)" box may be checked only if the aircraft maximum ceiling is below FL 290.*

14. *If extended diversion time operations (EDTO) specific approval does not apply based on the provisions in Chapter 4, 4.7, select "N/A". Otherwise a threshold time and maximum diversion time must be specified.*
15. *The threshold time and maximum diversion time may also be listed in distance (NM), as well. Details of each particular aeroplane – engine combination for which the threshold time is established and maximum diversion time has been granted may be listed under 'Remarks'. One line per approval may be used if different approvals are granted.*
16. *Performance-based navigation (PBN): one line is used for each PBN AR navigation specification approval (e.g. RNP AR APCH), with appropriate limitations listed in the "Description" column.*
17. *Insert the name of the person/organization responsible for ensuring that the continuing airworthiness of the aircraft is maintained and the regulation that requires the work, i.e. within the AOC regulation or a specific approval (e.g. EC2042/2003, Part M, Subpart G).*
18. *List the EFB functions used for safe operation of aeroplane and any applicable limitations.*
19. *Other authorizations or data can be entered here, using one line (or one multi-line block) per authorization (e.g. special approach authorization, approved navigation performance).*

Appendix 7

FATIGUE RISK MANAGEMENT SYSTEM REQUIREMENTS

(Intentionally Left Blank)

Appendix 8

FLIGHT RECORDERS

(See Para 6, 6.3)

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

Appendix 9

LOCATION OF AN AEROPLANE IN DISTRESS

(See Para 6, 6.18)

1. Purpose and scope

Location of an aeroplane in distress aims at establishing, to a reasonable extent, the location of an accident site within a 6 NM radius.

2. Operation

2.1 An aeroplane in distress shall automatically activate the transmission of information from which its position can be determined by the operator and the position information shall contain a time stamp. It shall also be possible for this transmission to be activated manually. The system used for the autonomous transmission of position information shall be capable of transmitting that information in the event of aircraft electrical power loss, at least for the expected duration of the entire flight.

Note.— Guidance on the location of an aeroplane in distress is provided in Attachment J of CAR Section 8 Series O Part II.

2.2 An aircraft is in a distress condition when it is in a state that, if the aircraft behavior event is left uncorrected, can result in an accident. Autonomous transmission of position information shall be active when an aircraft is in a distress condition. This will provide a high probability of locating an accident site to within a 6 NM radius. The operator shall be alerted when an aircraft is in a distress condition with an acceptable low rate of false alerts. In case of a triggered transmission system, initial transmission of position information shall commence immediately or no later than five seconds after the detection of the activation event.

Note. 1— Aircraft behavior events can include but are not limited to unusual attitudes, unusual speed conditions, collision with terrain and total loss of thrust/propulsion on all engines and ground proximity warnings.

Note. 2— A distress alert can be triggered using criteria that may vary as a function of aircraft position and phase of flight. Further guidance regarding in-flight event detection and triggering criteria may be found in the EUROCAE ED-237, Minimum Aviation System Performance Specification (MASPS) for Criteria to Detect In-Flight Aircraft
Distress Events to Trigger Transmission of Flight Information.

2.3 When an aircraft operator or an air traffic service unit (ATSU) has reason to believe that an aircraft is in distress, coordination shall be established between the ATSU and the aircraft operator.

2.4 DGCA shall identify the organizations that will require the position information of an aircraft in an emergency phase. These shall include, as a minimum:

a) air traffic service unit(s) (ATSU); and

b) SAR rescue coordination centre (s) (RCC) and sub-centres.

Note 1.— Refer to Annex 11 for emergency phase criteria.

Note 2.— Refer to Annex 12 for required notifications in the event of an emergency phase.

2.5 When autonomous transmission of position information has been activated, it shall only be able to be de-activated using the same mechanism that activated it.

2.6 The accuracy of position information shall, as a minimum, meet the position accuracy requirements established for ELTs.

APPENDIX 10. ARTICLE 83 *bis* AGREEMENT SUMMARY

(Chapter 6, 6.1.5.4, refers)

. . .

2. Article 83 *bis* agreement summary

ARTICLE 83 *bis* AGREEMENT SUMMARY			
Title of the Agreement:			
State of Registry:		Focal point:	
State of the Operator:		Focal point:	
Date of signature:	By State of Registry[1]:		
	By State of the Operator[1]:		
Duration:	Start Date[1]:	End Date (if applicable)[2]:	
Languages of the Agreement			
ICAO Registration No.:			
Umbrella Agreement (if any) with ICAO Registration number:			

Convention on International Civil Aviation	**ICAO Annexes affected by the transfer of responsibility in respect of certain functions and duties to the State of the Operator**		
Article 12: Rules of the Air	Annex 2, all chapters	Yes ☐ No. ☐	
Article 30 a): Aircraft radio equipment	Radio Station Licence	Yes ☐ No ☐	
Articles 30 b) and 32 a): Licenses of personnel	Annex 1, Chapters 1, 2, 3 and 6; and Annex 6, Part I, Radio Operator; or Annex 6, Part II (qualifications and/or flight crew member licensing); or Annex 6, Part III, Section II (composition of the flight crew) (radio operator)~~;~~	Yes ☐ No ☐	Annex 6: [Specify Part and paragraph][3]
Article 31: Certificates of Airworthiness	Annex 6 Part I or Part III, Section II	Yes ☐ No ☐	[Specify Part and chapters][3]
	Annex 6 Part II	Yes ☐ No ☐	[Specify chapters][3]
	Annex 8 Part II, Chapters 3 and 4	Yes ☐ No ☐	[Specify chapters][3]

Aircraft affected by the transfer of responsibilities to the State of the Operator					
Aircraft make, model, series	Nationality and registration marks	Serial No.	AOC No. (Commercial air transport)	Dates of transfer of responsibilities	
				From[1]	To (if applicable)[2]

Attachment A

MEDICAL SUPPLIES

(See Para 6, 6.2.2 a)

Refer CAR Section 2, Series X Part III

Attachment B

AEROPLANE PERFORMANCE OPERATING LIMITATIONS

(Intentionally Left Blank)

Attachment C

AIR OPERATOR CERTIFICATION AND VALIDATION

(See Para 4, 4.2.1)

Guidance for issuance of air operator's certificate is given in CAP 3100 and CAP 3300.

MINIMUM EQUIPMENT LIST (MEL)

(See Para 6, 6.1.3)

Guidance on the minimum equipment list is contained in CAR Section 2 Series B Part I.

FLIGHT SAFETY DOCUMENTS SYSTEM

(See Para 3, 3.3.6)

1. Introduction

1.1 The following material provides guidance on the organization and development of an operator's flight safety documents system. It should be understood that the development of a flight safety documents system is a complete process, and changes to each document comprising the system may affect the entire system. Guidelines applicable to the development of operational documents have been produced by government and industry sources and are available to operators. Nevertheless, it may be difficult for operators to make the best use of these guidelines, since they are distributed across a number of publications.

1.2 Furthermore, guidelines applicable to operational documents development tends to focus on a single aspect of documents design, for example, formatting and typography. Guidelines rarely cover the entire process of operational documents development. It is important for operational documents to be consistent with each other, and consistent with regulations, manufacturer requirements and Human Factors principles. It is also necessary to ensure consistency across departments as well as consistency in application. Hence the emphasis on an integrated approach, based on the notion of the operational documents as a complete system.

1.3 The guidelines in this Appendix address the major aspects of an operator's flight safety documents system development process, with the aim of ensuring compliance with Para 3, 3.3. The guidelines are based not only upon scientific research, but also upon current best industry practices, with an emphasis on a high degree of operational relevance.

2. Organization

2.1 A flight safety documents system should be organized according to criteria which ensure easy access to information required for flight and ground operations contained in the various operational documents comprising the system and which facilitate

management of the distribution and revision of operational documents.

2.2 Information contained in a flight safety documents system should be grouped according to the importance and use of the information, as follows:

a) time critical information, e.g., information that can jeopardize the safety of the operation if not immediately available;
b) time sensitive information, e.g., information that can affect the level of safety or delay the operation if not available in a short time period;
c) frequently used information;
d) reference information, e.g., information that is required for the operation but does not fall under b) or c) above; and
e) information that can be grouped based on the phase of operation in which it issued.

2.3 Time critical information should be placed early and prominently in the flight safety documents system.

2.4 Time critical information, time sensitive information, and frequently used information should be placed in cards and quick-reference guides.

3. Validation

The flight safety documents system should be validated before deployment, under realistic conditions. Validation should involve the critical aspects of the information use, in order to verify its effectiveness. Interactions among all groups that can occur during operations should also be included in the validation process.

4. Design

4.1 A flight safety documents system should maintain consistency in terminology and in the use of standard terms for common items and actions.

4.2 Operational documents should include a glossary of terms, acronyms and their standard definition, updated on a regular basis to ensure access to the most recent terminology. All significant terms, acronyms and abbreviations included in the flight documents system should be defined.

4.3 A flight safety documents system should ensure standardization across document types, including writing style, terminology, use of graphics

and symbols, and formatting across documents. This includes a consistent location of specific types of information, consistent use of units of measurement and consistent use of codes.

4.4 A flight safety documents system should include a master index to locate, in a timely manner, information included in more than one operational document.

Note.— The master index must be placed in front of each document and consist of no more than three levels of indexing. Pages containing abnormal and emergency information must be tabbed for direct access.

4.5 A flight safety documents system should comply with the requirements of the operator's quality system, if applicable.

5. Deployment

Operators should monitor deployment of the flight safety documents system, to ensure appropriate and realistic use of the documents, based on the characteristics of the operational environment and in a way which is both operationally relevant and beneficial to operational personnel. This monitoring should include a formal feedback system for obtaining input from operational personnel.

6. Amendment

6.1 Operators should develop an information gathering, review, distribution and revision control system to process information and data obtained from all sources relevant to the type of operation conducted, including, but not limited to, the State of the Operator, State of design, State of Registry, manufacturers and equipment vendors.

Note.— Manufacturers provide information for the operation of specific aircraft that emphasizes the aircraft systems and procedures under conditions that may not fully match the requirements of operators. Operators should ensure that such information meets their specific needs and those of the local authority.

6.2 Operators should develop an information gathering, review and distribution system to process information resulting from changes that originate within the operator, including: a) changes resulting from the installation of new equipment;

b) changes in response to operating experience;
c) changes in an operator's policies and procedures;
d) changes in an operator certificate; and
e) changes for purposes of maintaining cross fleet standardization.

Note.— Operators should ensure that crew coordination philosophy, policies and procedures are specific to their operation.

6.3 A flight safety documents system should be reviewed:
a) on a regular basis (at least once a year);
b) after major events (mergers, acquisitions, rapid growth, downsizing, etc.);
c) after technology changes (introduction of new equipment); and
d) after changes in safety regulations.

6.4 Operators should develop methods of communicating new information. The specific methods should be responsive to the degree of communication urgency.

Note.— As frequent changes diminish the importance of new or modified procedures, it is desirable to minimize changes to the flight safety documents system.

6.5 New information should be reviewed and validated considering its effects on the entire flight safety documents system.

6.6 The method of communicating new information should be complemented by a tracking system to ensure currency by operational personnel. The tracking system should include a procedure to verify that operational personnel have the most recent updates.

Attachment F

ADDITIONAL GUIDANCE FOR APPROVED OPERATIONS BY SINGLE-ENGINE TURBINE- POWERED AEROPLANES AT NIGHT AND/OR IN INSTRUMENT METEOROLOGICAL CONDITIONS (IMC)

(See Para 5, 5.4 and Appendix 3)

1. PURPOSE AND SCOPE

The purpose of this attachment is to give additional guidance on the airworthiness and operational requirements described in Para 5, 5.4 and Appendix 3, which have been designed to meet the overall level of safety intended for approved operations by single- engine turbine-powered aeroplanes at night and/or in IMC.

2. TURBINE ENGINE RELIABILITY

2.1 The power loss rate required in Para 5, 5.4.1 and Appendix 3 should be established as likely to be met based on data from commercial operations supplemented by available data from private operations in similar theatres of operation. A minimum amount of service experience is needed on which to base the judgment, and this should include at least 20 000 hours on the actual aeroplane/engine combination unless additional testing has been carried out or experience on sufficiently similar variants of the engine is available.

2.2 In assessing turbine engine reliability, evidence should be derived from a world fleet database covering as large a sample as possible of operations considered to be representative, compiled by the manufacturers and reviewed with the States of Design and of the Operator. Since flight hour reporting is not mandatory for many types of operators, appropriate statistical estimates may be used to develop the engine reliability data. Data for individual operators approved for these operations including trend monitoring and event reports should also be monitored and reviewed by the State of the Operator to ensure that there is no indication that the operator’s experience is unsatisfactory.

2.2.1 Engine trend monitoring should include the following:

a) an oil consumption monitoring programme based on manufacturer’s recommendations; and

b) an engine condition monitoring programme describing the parameters to be monitored, the method of data collection and the corrective action process; this should be based on the manufacturer's recommendations. The monitoring is intended to detect turbine engine deterioration at an early stage to allow for corrective action before safe operation is affected.

2.2.2 A reliability programme should be established covering the engine and associated systems. The engine programme should include engine hours flown in the period and the in-flight shutdown rate for all causes and the unscheduled engine removal rate, both on a 12-month moving average basis. The event reporting process should cover all items relevant to the ability to operate safely at night and/or in IMC. The data should be available for use by the operator, the Type Certificate Holder and the State so as to establish that the intended reliability levels are being achieved. Any sustained adverse trend should result in an immediate evaluation by the operator in consultation with the State and manufacturer with a view to determining actions to restore the intended safety level. The operator should develop a parts control programme with support from the manufacturer that ensures that the proper parts and configuration are maintained for single-engine turbine- powered aeroplanes approved to conduct these operations. The programme includes verification that parts placed on an approved single-engine turbine- powered aeroplane during parts borrowing or pooling arrangements, as well as those parts used after repair or overhaul, maintain the necessary configuration of that aeroplane for operations approved in accordance with para 5, 5.4.

2.3 Power loss rate should be determined as a moving average over a specified period (e.g. a 12-month moving average if the sample is large). Power loss rate, rather than in-flight shutdown rate, has been used as it is considered to be more appropriate for a single- engine aeroplane. If a failure occurs on a multi-engine aeroplane that causes a major, but not total, loss of power on one engine, it is likely that the engine will be shut down as positive engineout performance is still available, whereas on a single-engine aeroplane it may well be decided to make use of the residual power to stretch the glide distance.

2.4 The actual period selected should reflect the global utilization and the relevance of the experience included (e.g. early data may not be relevant due to subsequent mandatory modifications which affected the power loss rate). After the introduction of a new engine variant and

whilst global utilization is relatively low, the total available experience may have to be used to try to achieve a statistically meaningful average.

3. OPERATIONS MANUAL

The operations manual should include all necessary information relevant to operations by single-engine turbine-powered aeroplanes at night and/or in IMC. This should include all of the additional equipment, procedures and training required for such operations, route and/or area of operation and aerodrome information (including planning and operating minima).

4. OPERATOR CERTIFICATION OR VALIDATION

The certification or validation process specified by the State of the Operator should ensure the adequacy of the operator's procedures for normal, abnormal and emergency operations, including actions following engine, systems or equipment failures. In addition to the normal requirements for operator certification or validation, the following items should be addressed in relation to operations by single-engine turbine-powered aeroplanes:

a) proof of the achieved engine reliability of the aeroplane engine combination (see Appendix 3, paragraph 1);

b) specific and appropriate training and checking procedures including those to cover engine failure/malfunction on the ground, after take-off and en-route and descend to a forced landing from the normal cruising altitude;

c) a maintenance programme which is extended to address the equipment and systems referred to in Appendix 3,paragraph 2;

d) an MEL modified to address the equipment and systems necessary for operations at night and/or in IMC;

e) planning and operating minima appropriate to the operations at night and/or in IMC;

f) departure and arrival procedures and any route limitations;

g) pilot qualifications and experience; and

h) the operations manual, including limitations, emergency procedures, approved routes or areas of operation, the MEL and normal

procedures related to the equipment referred to in Appendix 3, paragraph 2.

5. OPERATIONAL AND MAINTENANCE PROGRAMME REQUIREMENTS

5.1 Approval to undertake operations by single-engine turbine-powered aeroplanes at night and/or in IMC specified in an air operator certificate or equivalent document should include the particular airframe/engine combinations, including the current type design standard for such operations, the specific aeroplanes approved, and the areas or routes of such operations.

5.2 The operator's maintenance control manual should include a statement of certification of the additional equipment required, and of the maintenance and reliability programme for such equipment, including the engine.

6. ROUTE LIMITATIONS OVER WATER

6.1 Operators of single-engine turbine-powered aeroplanes carrying out operations at night and/or in IMC should make an assessment of route limitations over water. The distance that

the aeroplane may be operated from a land mass suitable for a safe forced landing should be determined. This equates to the glide distance from the cruise altitude to the safe forced landing area following engine failure, assuming still air conditions. States may add to this an additional distance taking into account the likely prevailing conditions and type of operation. This should take into account the likely sea conditions, the survival equipment carried, the achieved engine reliability and the search and rescue services available.

6.2 Any additional distance allowed beyond the glide distance should not exceed a distance equivalent to 15 minutes at the aeroplane's normal cruise speed.

AUTOMATIC LANDING SYSTEMS, HEAD-UP DISPLAY (HUD) OR EQUIVALENT DISPLAYSAND VISION SYSTEMS

(Refer OC 18 of 2014)

Attachment H

RESCUE AND FIRE FIGHTINGSERVICES (RFFS) LEVELS

(See Para 4, 4.1.4)

1. PURPOSE AND SCOPE

1.1 Introduction

The purpose of this Attachment is to provide guidance for assessing the level of RFFS deemed acceptable by aeroplane operators using aerodromes for different differing purposes. This guidance does not relieve the operator from the obligation to ensure that an acceptable level of protection is available for the aeroplane intended to be used.

1.2 Basic concepts

1.2.1 For flight planning purposes, an aeroplane operator should utilize an aerodrome whose RFFS category, as required by Annex 14, Volume I, Chapter 9, 9.2, matches or exceeds the aeroplane's RFFS category. Some aerodromes currently used do not, however, meet these requirements. Furthermore, Annex 14, Volume I provisions relate to the level of aerodrome RFFS to be provided for aeroplanes normally using an aerodrome; hence, this level of RFFS protection does not take into account aeroplanes for which the aerodrome is selected as an alternative aerodrome.

1.2.3 In order to determine the acceptability of an aerodrome RFFS protection level, the operator should consider:

a) *for a departure or destination aerodrome*, the difference between the aerodrome RFFS category and the aeroplane RFFS category, and the frequency of flights to that aerodrome; and

b) *for an alternate aerodrome*, the difference between the aerodrome RFFS category and the aeroplane RFFS category, and the probability that this alternate aerodrome will be used.

1.2.4 The intention is that the operator will consider the available RFFS as one element of a risk assessment process conducted under their Safety Management System, to ensure that the overall safety of the

operation can be maximised. This risk assessment would also include considerations of aerodrome facilities, availability, terrain, weather conditions etc. to ensure that the most appropriate aerodrome was selected.

Note.— Annex 19 includes safety management provisions for air operators. Further guidance is contained in the Safety Management Manual (SMM) *(Doc 9859).*

1.2.5 The following guidance is intended to assist operators in making the assessment required by Para 4, 4.1.4 with due consideration of the basic principles described in 1.2.1 to 1.2.4. It is not intended that this guidance limit or regulate the operation of an aerodrome.

2. GLOSSARY OF TERMS

***Aerodrome RFFS category*.** The RFFS category for a given aerodrome, as published in the appropriate Aeronautical Information Publication (AIP).

***Aeroplane RFFS category*.** The category derived from Annex 14, Volume I, Table 9-1 for a given aeroplane type.

***Temporary downgrade*.** RFFS category as notified, including by NOTAM, and resulting from the downgrade of the level of RFFS protection available at an aerodrome.

3. ACCEPTABLE AERODROME RFFS CATEGORY

3.1 Planning

3.1.1 In principle, the published RFFS category for each of the aerodromes used for a given flight should be equal to or better than the aeroplane's RFFS category. However, if the aeroplane's RFFS category is not available at one or more of the aerodromes required to be specified in the operational flight plan, the operator should ensure that the aerodrome has a level of RFFS category which is deemed acceptable based on a risk assessment conducted as part of the operator's safety management system (SMS). When establishing acceptable levels of RFFS category for these situations, the operator may use the criteria in Table I-1-1 and Table I-1-2. Notwithstanding these criteria, the operator may determine other acceptable levels of RFFS category in accordance with paragraph 3.1.3 of Attachment H.

3.1.1.1 Intended operations to aerodromes with RFFS categories below the levels specified in Annex 14, Volume I, Chapter 9, 9.2, should be coordinated between the aeroplane operator and the aerodrome operator.

3.1.1.2 For departure and destination aerodromes, during flight planning, the acceptable RFFS protection level should equal or exceed the values specified in Table I-1-1.

Table I-1-1. Acceptable aerodrome category for rescue and fire fighting (departure and destination aerodrome)

3.1.1.3 So as to comply with the operational regulations applicable to a given flight, the operator selects alternate aerodrome(s) for various uses. During flight planning, the acceptable aerodrome RFFS category at a selected alternate aerodrome may equal or

Aerodromes (Required to be specified in the operational flight plan) *Note.— If an individual aerodrome serves more than one purpose, the highest required category corresponding to that purpose at the time of expected use applies.*	**Acceptable aerodrome RFFS category** (Based on published aerodrome RFFS category, including any modification by NOTAM)
Departure and destination aerodrome	RFFS category for each aerodrome should be equal to or better than the aeroplane RFFS category. Where a suitable risk assessment has been conducted by the operator: **One** category below the aeroplane RFFS category, or **Two** categories below the aeroplane RFFS category, in the case of a temporary downgrade of 72 hours or less but not lower than aerodrome RFFS Category 4 for aeroplanes with maximum certificated take- off mass of over 27 000 kg and not lower than Category 1 for other aeroplanes.

exceed the values specified as follows.

Table I-1-2. Acceptable aerodrome category for rescue and firefighting (alternate aerodromes)

Aerodromes (Required to be specified in the operational flight plan) *Note.— If an individual aerodrome serves more than one purpose, the highest required category corresponding to that purpose at the time of expected use applies.*	**Acceptable aerodrome RFFS protection level** (Based on published aerodrome RFFS category, including any modification by NOTAM)
Take-off alternate and destination alternate aerodromes	Where a suitable risk assessment has been conducted by the operator:
	Two categories below the aeroplane RFFS category, or **Three** categories below the aeroplane RFFS category in the case of a temporary downgrade of 72 hours or less but not lower than aerodrome RFFS Category 4 for aeroplanes with maximum certificated take-off mass of over 27 000 kg and not lower than Category 1 for other aeroplanes.
En-route alternate aerodromes	• If at least 30 minutes notice is given to the aerodrome operator prior to the arrival of the aeroplane, a minimum of RFFS Category4 for aeroplanes with maximum certificated take- off mass of over 27 000 kg, and RFFS Category 1 for other aeroplanes. • If less than 30 minutes notice can be given to the aerodrome operator prior to the arrival of the aeroplane: - **Two** categories below the aeroplane RFFS category; or - **Three** categories below the aeroplane RFFS category in the case of a temporary downgrade of 72 hours or less. but not lower than aerodrome RFFS Category 4 for aeroplanes with maximum certificated take-off mass of over 27 000 kg and not lower than Category 1 for other aeroplanes.

3.1.3 **Variations**

3.1.3.1 Notwithstanding the guidance developed in 3.1.1, an aerodrome RFFS category below the protection levels defined in Tables I-1-1 and I-1-2 may be acceptable if other considerations prevail, such as weather conditions, runway(s) characteristics, or length of diversion. Such variation should be based on a specific risk assessment conducted by the operator as part of its safety management system.

3.1.3.2 Variations to the aerodrome RFFS category may concern,

amongst other cases: a) an occasional flight; or

b) temporary downgrades exceeding 72 hours.

Where applicable, a variation may be used for a group of aerodromes selected for the same purpose, for a given aeroplane type.

3.1.3.3 The aforementioned variations may be based on additional or other criteria relevant to the type of operations. For instance, the 72-hour threshold for RFFS temporary downgrades may not be relevant for a single flight to or from the aerodrome concerned, such as a non-scheduled flight, whereas it is fully relevant for operations carried out on a continuous and daily basis. A variation may be time limited. A variation may also be modified to reflect the changes of the RFFS protection level available at the aerodrome(s) concerned. In accordance with Annex 6, Part I, Chapter 4, 4.1.5, the variations and their validity period should be included in the operations manual.

3.1.3.4 For variations to the acceptable RFFS category at departure and destination aerodromes, the aeroplane operator's specific safety risk assessment for an aerodrome intended to be used as a departure or destination aerodrome may be based on the following elements:

a) the frequency of flights intended by the aeroplane operator in relation to a lowered aerodrome RFFS category;

b) coordination between the aeroplane operator and the aerodrome operator (for instance, reducing intervention time by prepositioning the existing RFFS means along the runway before the intended take-off or landing).

3.1.3.5 For regular flights, the coordination should take into account the principles of Annex 14, Volume I, Chapter 9, 9.2.5 and 9.2.6 which are applicable to the aerodrome operator, as well as the possibilities to

modulate the aerodrome RFFS category available on a daily cycle or seasonal cycle.

3.1.3.6 For variations in acceptable RFFS for an alternate aerodrome, the aeroplane operator's specific safety risk assessment for an aerodrome selected as a take-off alternate aerodrome, a destination alternate aerodrome or an en-route alternate aerodrome may be based on the following elements:

a) the probability of effective use of the aerodrome concerned; and
b) the frequency of selection of the aerodrome for the respective purpose of use.

3.2 In flight

3.2.1 The information contained in the operations manual according to CAR Section 8 Series O Part II, Para 4, 4.1.5 about the aerodrome RFFS category acceptable at the planning stage (including Tables I-1-1, I-1-2 and, where usable, the variations under the specifications in 3.1.3) is applicable at the in-flight re-planning point.

3.2.2 In flight, the pilot-in-command may decide to land at an aerodrome regardless of the RFFS category if, in the pilot's judgement after due consideration of all prevailing circumstances, to do so would be safer than to divert.

DANGEROUS GOODS

(See Para 14)

Refer CAR Section 11, Section C Part I.

ACCURATE LOCATION OF THE END OF FLIGHT

(See Para 6, 6.3.6, 6.17 and 6.18)

GUIDANCE FOR ACCURATE LOCATION OF THE END OF FLIGHT

1. Introduction

1.1 The following material provides guidance on determining the end of flight location, which includes guidance related to the location of an aircraft in distress (6.18) along with additional information on the interrelation between these Standards and those for the carriage of ELTs (6.17) and flight recorder data recovery (6.3.6) The Triggered Transmission of Flight Data Working Group (TTFDWG) reviewed forty- two accidents to determine an indication of the distance from a last-known aeroplane position to the location of an accident site. The report concluded that in approximately 95 per cent of the cases, when the aircraft position was known one minute prior to the accident, the accident site location was within a 6 NM radius of that position. (Click here to access the TTFDWG Report under the "publications" tab or go to https://www.bea.aero/en/- .)

Note.— In this context "end of flight" refers to the location of the aircraft following an accident, and not to the safe landing at destination or at an alternate aerodrome.

1.2 When an aeroplane has an accident into water and becomes submerged, the location of the accident site within a 6 NM radius on the surface becomes more important. Starting the initial search area beyond a 6 NM radius reduces the amount of time available to search for and locate the aeroplane. At current estimated underwater search capabilities of 100 km^2/day, an area with a 6 NM radius could be searched in four days. Allowing for naval assets to reach the search area and conduct the search, it is estimated that an area of 2 300 km^2, equivalent to a radius of 14 NM, will be able to be searched before the ULD battery degrades. Starting at an area of more than 6 NM radius reduces the probability of a successful location during an initial search, whilst extending the location requirement beyond 6 NM

radius reduces the time available to search with no appreciable gain in the probability of recovery.

1.3 When an accident is survivable, the accurate determination of the location of the end of flight in a timely manner is essential and may not only rely on the last known aeroplane position before the accident. An ELT automatically activated subsequent to an impact is therefore required and aims at enabling timely, efficient and effective search and rescue (SAR) operations by guiding SAR units to the actual accident scene to rescue survivors during the time-frame for survival and minimize the risk to SAR units.

Note.— Additional guidance on the robust and automatic means to accurately determine the location of the point of end of flight is contained in the Manual on Global Aeronautical Distress and Safety System (Doc 10165)

2. Clarification of purpose of equipment

2.1 In flight - information from which a position can be determined: Information from an aircraft system which either is active, or, when automatically or manually activated, can provide flight position information which includes a time stamp. This is a performance- based requirement which is not system-specific and may also bring operational benefits.

2.2 Emergency locator transmitter (ELT): ELTs are designed to provide the position of impact for a survivable accident. Some ELTs may also have the additional capability to be automatically activated in flight, by any of the conditions detailed in EUROCAE ED-237, Minimum Aviation System Performance Specification (MASPS) for Criteria to Detect In-Flight Aircraft Distress Events to Trigger Transmission of Flight Information If an ELT sinks below the surface of water, its signal is not detectable.

Note.— A distress tracking capability meeting the requirements of Chapter 6, 6.18, does not necessarily include the automatic activation function subsequent to an impact or the post-accident homing signal.

2.3 Automatic deployable flight recorder (ADFR): The purpose of an ADFR is to have flight recorder data available soon after an accident, in particular for accidents over water. The ADR

contains an integrated ELT which provides for both locating the accident site for accident investigation and search and rescue purposes. Being floatable, it will assist in locating the accident site by providing an ELT signal if the wreckage sinks below the surface of the water. The ADFR may be used to meet the requirements of Chapter 6, 6.17, regarding the carriage of an automatic ELT on the aircraft.

3. Equipage Compliance

The advancement of technology has made it possible to meet the equipage requirements by different means. Table K-1 below provides a list of most stringent examples of compliance to accurately determine the location of the end of flight and provides possible equipage combinations. In such potential installations, the cost will be minimized and the effectiveness of the current installation improved.

Table K-1. Examples of compliance

Date of application for type certificate submitted to a Contracting State	*Date of issuance of first Certificate of for the individual aircraft*	*Examples of aeroplane equipage for compliance with Standards in Chapter 6, 6.3.6, 6.17 and 6.18*
Before 1 January 2021	*Before 1 January 2024*	*Two ELTs, one of which must be an automatic ELT.*
Before 1 January 2021	*On or after 1 January 2024*	*One device meeting the requirements of 6.18, plus one automatic ELT; or One device meeting the*

		requirements of Chapter 6, 6.18, and which includes the functionality of an automatic ELT, plus one additional ELT.
On or after 1 January 2021	*Before 1 January 2024*	*One deployable ADFR with integrated automatic ELT, plus one additional ELT.*
On or after 1 January 2021	*On or after 1 January 2024*	*One device meeting the requirements of Chapter 6, 6.18, and which includes the functionality of an automatic ELT, plus one additional ELT, plus a capability meeting the requirements of Chapter 6, 6.3.6;* *Or* *One deployable ADFR with integrated automatic ELT, plus one device meeting the requirements of Chapter 6, 6.18;* *Or* *One deployable ADFR with*

		integrated automatic ELT which also meets the requirement of 6.18, plus one additional ELT.

Attachment K

GUIDE TO CURRENT FLIGHT RECORDER PROVISIONS

(See Para 6, 6.3)

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