



GOVERNMENT OF INDIA

**OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION**

TECHNICAL CENTRE, OPP SAFDURJUNG AIRPORT, NEW DELHI - 110003

**CIVIL AVIATION REQUIREMENTS**

**SECTION 8 – OPERATIONS**

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**Subject: OPERATION OF GENERAL AVIATION HELICOPTERS**

**INTRODUCTION**

This CAR lays down provisions for a helicopter operation other than commercial air transport operation or an aerial work operation for helicopters registered in India and engaged in general aviation and lays down the minimum operational, equipment and instrument requirements.

This CAR has been issued under the provision of Rule 29C and Rule 133A of the Aircraft Rules 1937, for adoption of the minimum operational, equipment and instrument requirement of ICAO and is in conformity with Annex 6 Part III (uptil Amendment 20).

**DEFINITIONS**

**Aerial work.** An aircraft operation in which an aircraft is used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc.

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

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

**Aircraft operating manual.** A manual, acceptable to DGCA 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 part of the Operations manual.*

**Air Operator Certificate.** An operating certificate or an equivalent document issued by DGCA 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.

**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).

**Alternate heliport.** A heliport to which a helicopter may proceed when it becomes either impossible or inadvisable to proceed to or to land at the heliport of intended landing. Alternate heliports include the following:

- (a) Take-off alternate. An alternate heliport at which a helicopter can land should this become necessary shortly after takeoff and it is not possible to use the heliport of departure.
- (b) En-route alternate. A heliport at which a helicopter would be able to land after experiencing an abnormal or emergency condition while en route.
- (c) Destination alternate. An alternate heliport to which a helicopter may proceed should it become either impossible or inadvisable to land at the heliport of intended landing.

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

**Approach and landing phase - helicopters.** That part of the flight from 1000 ft (300m) above the elevation of the final approach and take-off area (FATO), if the flight is planned to exceed this height, or from the commencement of the descent in the other cases, to landing or to the balked landing point.

**Area navigation (RNAV).** 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.

*Note. - Area navigation includes performance-based navigation as well as other operations that do not meet the definition of performance-based navigation.*

**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.

**Category A.** With respect to helicopters, means a multi-engine helicopter designed with engine and system isolation features capable of operations using take-off and landing data scheduled under a critical engine failure concept which assures adequate designated surface area and adequate performance capability for continued safe flight or safe rejected take-off.

**Category B.** With respect to helicopters, means a single-engine or multi-engine helicopter which does not meet Category A standards. Category B helicopters have no guaranteed capability to continue safe flight in the event of an engine failure, and a forced landing is assumed.

**Charter Operations** means an operation for hire and reward in which the departure time, departure location and arrival locations are specially negotiated and agreed with the customer or the customer's representative for entire aircraft. No ticket is sold to individual passenger for such operation.

**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.

**Committal Point (CP).** The committal point is defined as the point in the approach at which the pilot flying (PF) decides that, in the event of a power unit failure being recognized, the safest option is to continue to the deck.

**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.

**Congested area.** In relation to a city, town or settlement, any area which is substantially used for residential, commercial or recreational purposes.

**Congested Hostile Environment.** A hostile environment within a congested area.

**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.

**Continuous descent final approach (CDFA).** A technique, consistent with stabilized approach procedures, for flying the final approach segment of a non-precision instrument approach 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 manoeuvre should begin for the type of aircraft flown.

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

**D.** The largest dimension of the helicopter when the rotors are turning.

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

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

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

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

**Defined point after take-off (DPATO).** The point, within the take-off and initial climb phase, before which the helicopter’s ability to continue the flight safely, with one engine inoperative, is not assured and a forced landing may be required.

*Note. Defined points apply to helicopters operating in performance Class 2 only.*

**Defined point before landing (DPBL).** The point, within the approach and landing phase, after which the helicopter’s ability to continue the flight safely, with one engine inoperative, is not assured and a forced landing may be required.

*Note. Defined points apply to helicopters operating in performance Class 2 only.*

**Distance DR.** DR is the horizontal distance that the helicopter has travelled from the end of the take-off distance available.

**Dry Operating Mass.** The total mass of the helicopter when ready for a specific type of operation excluding all usable fuel and traffic load.

**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.

**Elevated heliport.** A heliport located on a raised structure on land.

**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:

- (a) *Automatic fixed ELT (ELT (AF)).* An automatically activated ELT which is permanently attached to an aircraft.
- (b) *Automatic portable ELT (ELT(AP)).* An automatically activated ELT which is rigidly attached to an aircraft but readily removable from the aircraft.
- (c) *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.
- (d) *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).*

**En-route phase.** That part of the flight from the end of the take-off and initial climb phase to the commencement of the approach and landing phase.

*Note.- Where adequate obstacle clearance cannot be guaranteed visually, flights must be planned to ensure that obstacles can be cleared by an appropriate margin. In the event of failure of the critical engine, operators may need to adopt alternative procedures.*

**Final approach and take-off area (FATO).** A defined area over which the final phase of the approach maneuver to hover or landing is completed and from which the take-

off maneuver is commenced. Where the FATO is to be used by performance Class I helicopters, the defined area includes the rejected take-off area available.

**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 duty period.** The total time from the moment a flight crew member commences duty, immediately subsequent to a rest period and prior to making a flight or a series of flights, to the moment the flight crew member is relieved of all duties having completed such flight or series of flights.

**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 prevention and investigation.

**Flight safety documents system.** A set of inter-related 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 operators' 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) *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;
- (b) *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;

- (c) *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.

**Flight time - helicopters.** The total time from the moment a helicopter's rotor blades start turning until the moment the helicopter finally comes to rest at the end of the flight, and the rotor blades are stopped.

*Note 1. — In any case, the time when rotors are running between sectors of a flight is included within the calculation of flight time.*

*Note 2. — This definition is intended only for the purpose of flight and duty time regulations.*

**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.

**Helicopter.** A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes.

**Helideck.** A heliport located on a floating or fixed off-shore structure.

**Heliport.** An aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

*Note 1. - When the term "heliport" is used, it is intended that the term also applies to aerodromes primarily meant for the use of aeroplanes.*

*Note 2.- Helicopters may be operated to and from areas other than heliports.*

**Heliport operating minima.** The limits of usability of a heliport for:

- (a) take-off, expressed in terms of runway visual range and/or visibility and, if necessary, cloud conditions;
- (b) landing in 2D instrument approach operations, expressed in terms of visibility and/or runway visual range, minimum descent altitude/height (MDA/H) and, if necessary, cloud conditions;
- (c) landing in 3D instrument approach operations, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H) as appropriate to the type and/or category of the operations.

**Hostile environment.** An environment in which:

- (a) a safe forced landing cannot be accomplished because the surface and surrounding environment are inadequate; or
- (b) the helicopter occupants cannot be adequately protected from the elements; or
- (c) search and rescue response/capability is not provided consistent with anticipated exposure; or
- (d) there is an unacceptable risk of endangering persons or property on the ground.

**Human Factor 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 2-dimensional (2D) instrument approach operation, using lateral navigation guidance only;
- (b) A 3-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) ground – based radio navigation aids; or*
- b) computer-generated navigation data from ground – based, space – based, self-contained navigation aids or a combination of these.*

**Instrument Approach Procedure.** 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:

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



(b) *Approach Procedure with Vertical Guidance (APV)*. A performance-based navigation (PBN) instrument approach procedure designed for 3D instrument approach operations Type A.

(c) *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.

**IFR flight.** A flight conducted in accordance with the instrument flight rules.

**IFR.** The symbol used to designate the instrument flight rules.

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

**IMC.** The symbol used to designate instrument meteorological conditions.

*Note.* - The specified minima for visual meteorological conditions as contained in CAR Section 9 Series 'C' Part I

**Integrated survival suit.** A survival suit which meets the combined requirement of survival suit and life jacket

**Landing decision point (LDP).** The point used in determining landing performance from which, a engine failure occurring at this point, the landing may be safely continued or a bailed landing initiated.

*Note.* - LDP applies to performance Class I helicopters.

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

**Maintenance Organization's Procedures Manual.** 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.

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

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

**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 mass.** Maximum certificated take-off mass.

**Minimum Descent Altitude (MDA) or Minimum Descent Height (MDH).** A specified altitude or height in a 2D instrument approach operation or circling approach operation below which descent must not be made without the required visual reference. Minimum descent altitude (MDA) or minimum descent height (MDH). A specified altitude or height in a non precision approach or circling approach below which descent must not be made without the required visual reference.

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

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

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

**Maximum Take-Of Mass.** The maximum permissible total helicopter mass at take-off.

**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.

**Mountain / Hill Flying.** Operations to/ from a helipad which has surrounding terrain at or above 4000 feet AMSL within a 10 nm radius.

**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:

- (a) *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.

- (b) *Area Navigation (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, RNAV1.

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

*Note 2.- The term RNP, previously defined as “a statement of navigation performance necessary for operation within a defined airspace”, has been removed from this annex as the concept of RNP has been overtaken by the concept of PBN. The term RNP in this CAR is now solely used in the context of navigation and specification that require performance monitoring and alerting, e. g. RNP 4 refers to the aircraft and operating requirements, including a 4 NM lateral performance with on-board performance monitoring and alerting that are detailed in 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 prescribed by Aircraft Rules 1937.

*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.*

**Non-congested hostile environment.** A hostile environment outside a congested area.

**Non-hostile environment.** An environment in which:

- (a) a safe forced landing can be accomplished because the surface and surrounding environment are adequate;
- (b) the helicopter occupants can be adequately protected from the elements;
- (c) search and rescue response/ capability is provided consistent with anticipated exposure; and
- (d) the assessed risk of endangering person or property on the ground is acceptable.

*Note.-Those parts of a congested area satisfying the above requirement are non-hostile.*

**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 approaches to the aerodrome elevation or the threshold elevation if that is more than 2 m (7ft) below the aerodrome elevation. An obstacle clearance height for a circling approach is referenced to the aerodrome elevation.*

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

**Offshore operations.** Operations which routinely have a substantial proportion of the flight conducted over sea areas to or from offshore locations. Such operations include, but are not limited to, support of offshore oil, gas and mineral exploitation and sea-pilot transfer.

**Operation.** An activity or group of activities which are subject to the same or similar hazards and which require a set of equipment to be specified, or the achievement and maintenance of a set of pilot competencies, to eliminate or mitigate the risk of such hazards.

*Note — Such activities could include, but would not be limited to, offshore operations, heli-hoist operations or emergency medical service.*

**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 consideration of helicopter performance, other operating limitations and relevant expected conditions on the route to be followed and at the heliports 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, conditions and limitations associated with the air operator permit/ 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 for 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, availability and functionality needed for the proposed operation in the context of a particular airspace concept.*

**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.

**Psychoactive substances.** Alcohol, opioids, cannabinoids, sedatives and hyponotics, cocaine, other psychostimulants, hallucinogens, and volatile solvents, whereas coffee and tobacco are excluded.

**R.** Rotor radius.

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

**Required communication performance (RCP).** 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.** A systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures

**Series of flights.** Series of flights are consecutive flights that:

- (a) begin and end within a period of 24 hours; and
- (b) are all conducted by the same pilot-in-command.

**Special VFR Flight.** A VFR flight cleared by air traffic control to operate within a control zone in meteorological conditions below VMC.

**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*

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

*Note. — State of the Aerodrome includes heliports and landing locations.*

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

**Take-off and initial climb phase.** That part of the flight from the start of take-off to 1000 ft (300 m) above the elevation of the FATO, if the flight is planned to exceed this height, or to the end of the climb in the other cases.

**Take-off decision point (TDP).** The point used in determining take-off performance from which, a engine failure occurring at this point, either a rejected take-off may be made or a take-off safely continued.

*Note.- TDP applies to performance Class I helicopters.*

**Take-Off Mass.** The take-off mass of the helicopter shall be taken to be its mass, including everything and everyone carried at the commencement of the take-off.

**Touchdown and Lift-Off Area (TLOF).** A load bearing area on which a helicopter may touchdown or lift off.

**VFR flight.** A flight conducted in accordance with the visual flight rules.

**VFR.** The symbol used to designate the visual flight rules.

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

*Note. - The specified minima are contained in CAR Section 9 Series 'C' Part I.*

**VMC.** The symbol used to designate visual meteorological conditions.

**V<sub>ross</sub>.** The minimum speed at which climb shall be achieved with the critical power-unit inoperative, the remaining engines operating within approved operating limits.

*Note.- The speed referred to above may be measured by instrument indications or achieved by a procedure specified in the flight manual.*

## 1. GENERAL REQUIREMENTS

### 1.1 Compliance with Laws, Regulations and Procedures

1.1.1 The Pilot-in-command shall comply with the laws, regulations and procedures of the States in which the helicopter is operated.

1.1.2 The pilot-in-command shall be responsible for the operation and safety of the helicopter and for the safety of all crew members, passengers and cargo on board, from the moment the engine(s) are started until the helicopter finally comes to rest at the end of the flight, with the engine(s) shut down and the rotor blades stopped.

1.1.3 If an emergency situation which endangers the safety of the helicopter or persons and necessitates the taking of action which involves a violation of regulations or procedures occurs within India, the pilot-in-command shall notify the nearest Flight Standards and Air Safety office of DGCA without delay. In the event such emergency situation occurs outside India, the pilot-in command shall notify the appropriate local authority without delay and if required by the State in which the incident occurs, the pilot-in-command shall also submit a report of the occurrence on any such violation to the appropriate authority of such State. The pilot-in-command shall submit a copy of the occurrence to the DGCA marked attention of Director of Air Safety (Hqrs) with a copy endorsed to the Principal Operations Inspector (POI) of the operator and the Regional Air Safety Office

where the helicopter is normally based. Such reports shall be submitted within 48 hours.

1.1.4 The pilot-in-command shall be responsible for notifying the nearest appropriate authority by the quickest available means of any accident involving the helicopter resulting in serious injury or death of any person or substantial damage to the helicopter or property.

1.1.5 The pilot-in-command should have available on board the helicopter essential information concerning the search and rescue services in the areas over which it is intended the helicopter will be flown.

1.2 **Dangerous goods.** The pilot-in-command shall adhere to the provisions for carriage of dangerous goods as contained in Aircraft (Carriage of Dangerous Goods) Rules, 2003 and CARs in Section 11.

1.3 **Use of psychoactive substances.** The pilot-in-command shall adhere to the provisions concerning the use of psychoactive substances as contained in Rule 24 of the Aircraft Rules, 1937 and CAR Section 9 Series 'C' Part I.

1.4 **Specific approvals.**

1.4.1 The pilot-in-command shall not conduct operations for which a specific approval is required unless such approval has been issued by the DGCA. Specific approvals shall follow the layout and contain at least the information listed in CAR Section 8 Series O Part IV.

## 2. FLIGHT OPERATIONS

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

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

2.2 **Heliport or landing location operating minima**

2.2.1 The pilot-in-command shall establish operating minima in accordance with criteria specified by the DGCA for each heliport or landing location to be used in operations. Such minima shall not be lower than any that may be established by the DGCA, except when specifically approved by DGCA.

Note.— DGCA is not required to establish operating minima.



2.2.1.1 DGCA may approve operational credit(s) for operations with helicopters equipped with automatic landing systems, a HUD or equivalent displays, EVS, SVS or CVS. Such approvals shall not affect the classification of the instrument approach procedure.

*Note 1.— Operational credit includes:*

- (a) for the purposes of an approach ban (2.6.3.2), a minima below the heliport or landing location 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 for aircraft equipped with automatic landing systems, a HUD or equivalent displays, EVS, SVS and CVS is contained in Attachment I and 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).*

*Note 4 — Automatic landing system — helicopter is an automatic approach using airborne systems which provide automatic control of the flight path, to a point aligned with the landing surface, from which the pilot can transition to a safe landing by means of natural vision without the use of automatic control.*

## 2.3 Briefing

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

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

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

## 2.4 Helicopter airworthiness and safety precautions

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

- (a) the helicopter is airworthy, duly registered and that appropriate certificates with respect thereto are aboard the helicopter;
- (b) the instruments and equipment including the emergency equipment installed in the helicopter are appropriate and serviceable, taking into account the expected flight conditions;
- (c) any necessary maintenance has been performed in accordance with para 6;
- (d) the mass of the helicopter and center of gravity location are such that the flight can be conducted safely, taking into account the flight conditions expected;
- (e) any load carried is properly distributed and safely secured;
- (f) it carries sufficient fuel and oil for the intended flight in accordance with this part of the CAR;
- (g) the engines is developing the rated power;
- (h) the various documents required for the flight are valid and are on board;
- (i) the helicopter has current and valid Certificate of Release to Service;
- (j) there is no physical damage apparent during his walk around inspection; and
- (k) the helicopter operating limitations, contained in the flight manual, or its equivalent, will not be exceeded.

*Note.- As regard to item 2.4 (g), the pilot shall ensure before take-off that engine(s) is/ are developing correct power.*

2.4.2 As a token of the compliance of the above, the pilot-in-command should sign these certificates either on tech-log or another appropriate document.

## 2.5 Weather reports and forecast

Before commencing a flight the pilot-in-command shall be familiar with all available meteorological information appropriate to the intended flight. Preparation for a flight away from the vicinity of the place of departure, and for every flight under the instrument flight rules, shall include:

- (a) a study of, available current weather reports and forecasts; and
- (b) the planning of an alternative course of action to provide for the eventuality that the flight cannot be completed as planned, because of weather conditions.

## 2.6 Limitations imposed by weather conditions

### 2.6.1 Flight in accordance with VFR

A flight, except one of purely local character in visual meteorological conditions, to be conducted in accordance with VFR 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 visual flight rules, will, at the appropriate time, be such as to enable compliance with these rules.

### 2.6.2 Flight in accordance with IFR

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

2.6.2.2 *When no alternate is required.* A flight to be conducted in accordance with the instrument flight rules to a heliport when no alternate heliport is required shall not be commenced unless available current meteorological information indicates that the following meteorological conditions will exist from two hours before to two hours after the estimated time of arrival: or from the actual time of departure to two hours after the estimated time of arrival, whichever is the shorter period:

- a) a cloud base of at least 400 ft (120 m) above the minimum associated with the instrument approach procedure; and
- b) visibility of at least 1.5 km more than the minimum associated with the procedure.

*Note - These should be considered as minimum values where a reliable and continuous meteorological watch is maintained. When only an "area" type forecast is available these values should be increased accordingly.*

### 2.6.3 Heliport operating minima

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

2.6.3.2 An instrument approach shall not be continued beyond the outer marker fix in case of precision approach, or below 300 m (1 000 ft) above the heliport elevation or into the final approach segment, unless the reported visibility or controlling RVR is above the specified minimum.

*Note.— Criteria for the final approach segment is contained in PANS-OPS (Doc 8168), Volume II*

2.6.3.3 If, after passing the outer marker fix in case of precision approach, or after descending below 300 m (1 000 ft) above the heliport in case of non-precision approach, the reported visibility or controlling RVR falls below the specified minimum, the approach may be continued to DA/H or MDA/H. In any case, a helicopter shall not continue its approach-to-land beyond a point at which the limits of the heliport operating minima would be infringed.

#### **2.6.4 Flight in icing conditions**

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

#### **2.7 Alternate heliports**

2.7.1 For a flight to be conducted in accordance with IFR, at least one alternate heliport or landing location shall be specified in the operational flight plan and the flight plan, unless:

- (a) the weather conditions in 2.6.2.2 prevail, or
- (b) 1) the heliport or landing location of intended landing is isolated and no alternate heliport or landing location is available; and  
2) an instrument approach procedure is prescribed for the isolated heliport of intended landing; and  
3) a point of no return (PNR) is determined in case of an off-shore destination.

2.7.2 Suitable off-shore alternates may be specified subject to the following:

- (a) the off-shore alternates shall be used only after passing a point of no return (PNR). Prior to PNR on-shore alternates shall be used;
- (b) mechanical reliability of critical control systems and critical components shall be considered and taken into account when determining the suitability of the alternate;
- (c) one engine inoperative performance capability shall be attainable prior to arrival at the alternate;
- (d) deck availability shall be guaranteed; and
- (e) weather information must be reliable and accurate.

*Note.- The landing technique specified in the flight manual following control system failure may preclude the nomination of certain helidecks as alternate heliports.*

2.7.3 Off-shore alternates should not be used when it is possible to carry enough fuel to have an on-shore alternate. Offshore alternates should not be used in a hostile environment.

## 2.8 Fuel and oil requirements

2.8.1 *All helicopters.* A flight shall not be commenced unless, taking into account both the meteorological conditions and any delays that are expected in flight, the helicopter carries sufficient fuel and oil to ensure that it can safely complete the flight. In addition, a reserve shall be carried to provide for contingencies.

2.8.2 *VFR operations.* The fuel and oil carried in order to comply with 2.8.1 shall, in the case of VFR operations, be at least the amount to allow the helicopter to:

- (a) fly to the landing site to which the flight is planned;
- (b) have a final reserve fuel to fly thereafter for a period of 20 minutes at best-range speed plus 10 percent of the planned flight time, and
- (c) have an additional amount of fuel, to provide for the increased consumption on the occurrence of potential contingencies.

2.8.3 *IFR operations.* The fuel and oil carried in order to comply with 2.8.1 shall, in the case of IFR operations, be at least the amount to allow the helicopter:

2.8.3.1 When no alternate is required, in terms of 2.6.2.2, to fly to and execute an approach at the heliport or landing location to which the flight is planned, and thereafter to have:

- (a) a final reserve fuel to fly 30 minutes at holding speed at 1500 ft (450 m) above the destination heliport or landing location under standard temperature conditions and approach and land; and
- (b) an additional amount of fuel to provide for the increased consumption on the occurrence of potential contingencies.

2.8.3.2 When an alternate is required, in terms of 2.6.2.1, to fly to and execute an approach, and a missed approach, at the heliport or landing location to which the flight is planned, and thereafter:

- (a) fly to and execute an approach at the alternate specified in the flight plan; and then

- (b) have a final reserve fuel to fly for 30 minutes at holding speed at 1500 ft (450 m) above the alternate under standard temperature conditions, and approach and land; and
- (c) have an additional amount of fuel to provide for the increased consumption on the occurrence of potential contingencies.

2.8.3.3 When no alternate heliport or landing location is available, (i.e. the heliport of intended landing is isolated and no alternate is available), to fly to the heliport to which the flight is planned and thereafter for a period that will, based on geographic and environmental considerations, enable a safe landing to be made.

2.8.4 In computing the fuel and oil required in 2.8.1, at least the following shall be considered:

- (a) meteorological conditions forecast;
- (b) expected air traffic control routings and traffic delays;
- (c) for IFR flight, one instrument approach at the destination heliport, including a missed approach;
- (d) the procedures for loss of pressurization, where applicable, or failure of one engine while en route; and
- (e) any other conditions that may delay the landing of the helicopter or increase fuel and/or oil consumption.

*Note : Nothing in para 2.8 precludes amendment of a flight plan in flight in order to replan the flight to another heliport, provided that the requirements of para 2.8 can be complied with from the point where the flight has been re-planned.*

2.8.5 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.

## 2.9 In-flight fuel management

2.9.1 The pilot-in-command shall monitor the amount of usable fuel remaining on board to ensure it is not less than the fuel required to proceed to a landing site where a safe landing can be made with the planned final reserve fuel remaining.

*Note.— The protection of final reserve fuel is intended to ensure safe landing at any heliport or landing location when unforeseen occurrences may not permit a safe completion of an operation as originally planned.*

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

*Note 1.— The declaration of MINIMUM FUEL informs ATC that all planned landing site options have been reduced to a specific landing site of intended landing, that no precautionary landing site is available, and any change to the existing clearance, or air traffic delays, may result in landing with less than the 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.— A precautionary landing site refers to a landing site, other than the site of intended landing, where it is expected that a safe landing can be made prior to the consumption of the planned final reserve fuel.*

2.9.3 The pilot-in-command shall declare a situation of fuel emergency by broadcasting MAYDAY MAYDAY MAYDAY FUEL, when the usable fuel estimated to be available upon landing at the nearest landing site where a safe landing can be made is less than the required final reserve fuel in compliance with 2.8.

*Note 1.— The planned final reserve fuel refers to the value calculated in 2.8 and is the minimum amount of fuel required upon landing at any landing site. The declaration of MAYDAY MAYDAY MAYDAY FUEL informs ATC that all available landing options have been reduced to a specific site and a portion of the final reserve fuel may be consumed prior to landing.*

*Note 2.— The pilot estimates with reasonable certainty that the fuel remaining upon landing at the nearest safe landing site will be less than the final reserve fuel taking into consideration the latest information available to the pilot, the area to be overflown (i.e. with respect to the availability of precautionary landing areas), meteorological conditions and other reasonable contingencies.*

*Note 3.— The words “MAYDAY FUEL” describe the nature of the distress conditions.*

## 2.10 Oxygen supply

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

Absolute pressure	Meters	Feet
700 hPa	3000	10000
620 hPa	4000	13000

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

- (a) all crew members and 10 percent of the passengers for any period in excess of 30 minutes that the pressure in compartments occupied by them will be between 700 hPa and 620 hPa;
- (b) the crew and passengers for any period that the atmospheric pressure in compartments occupied by them will be less than 620 hPa.

2.10.2 A flight to be operated with a pressurized helicopter shall not be commenced unless a sufficient quantity of stored breathing oxygen is carried to supply all the crew members and a proportion of the passengers, as is appropriate to the circumstances of the flight being undertaken, in the event of loss of pressurization, for any period that the atmospheric pressure in any compartment occupied by them would be less than 700 hPa.

### **2.11 Use of oxygen**

All flight crew members, when engaged in performing duties essential to the safe operation of a helicopter in flight, shall use breathing oxygen continuously whenever the circumstances prevail for which its supply has been required in 2.9.1 or 2.9.2.

### **2.12 In-flight emergency instruction**

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

### **2.13 Weather reporting by pilots**

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

### **2.14 Hazardous flight conditions**

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

### **2.15 Fitness of flight crew members**

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

- (a) will not be commenced if any flight crew member is incapacitated from performing duties by any cause such as injury, sickness, fatigue, the effects of alcohol or drugs; and



(b) will not be continued beyond the nearest suitable heliport when flight crew members' capacity to perform functions is significantly reduced by impairment of faculties from causes such as fatigue, sickness, lack of oxygen.

## 2.16 Flight crew members at duty stations

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

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

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

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

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

## 2.17 Instrument flight procedures

2.17.1 DGCA promulgates instrument approach procedures designed in accordance with the classification of instrument approach and landing operations to serve each instrument runway or heliport utilized for instrument flight operations.

2.17.2 All helicopters operated in accordance with instrument flight rules shall comply with the instrument flight procedures approved by DGCA if the heliport is located in India, or by the state which is responsible for the heliport when located outside the territory of India.

*Note 1.— See CAR Section 8 Series O Part IV, Para 2.2.8.3, 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 instrument flight procedures for the guidance of procedure specialists are provided 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 (see Section II, Chapter 1, 1.1.1).*

## 2.18 Instruction – General

The rotor of a helicopter shall not be turned under power without a qualified pilot at the controls.

### **2.19 Refuelling with passengers on board or rotors turning**

2.19.1 A helicopter should not be refuelled when passengers are embarking, on board or disembarking or when the rotor is turning unless it is attended by the pilot-in-command or other qualified personnel ready to initiate and direct an evacuation of the helicopter by the most practical and expeditious means available.

2.19.2 When refuelling with passengers embarking, on board or disembarking, two-way communications should be maintained by helicopter intercommunications system or other suitable means between the ground crew, supervising the refuelling and the pilot-in-command or other qualified personnel required by 2.19.1.

*Note 1.— Provisions concerning aircraft refuelling are contained in CAR Section 2 Series H Part II..*

*Note 2.— 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.*

### **2.20 Over-water flights**

All helicopters on flights over water in accordance with 4.3.1 shall be certificated for ditching. Sea state shall be an integral part of ditching information.

## **3. HELICOPTER PERFORMANCE OPERATING LIMITATIONS**

3.1 A helicopter shall be operated:

- (a) in compliance with the terms of its airworthiness certificate or equivalent approved document,
- (b) within the operating limitations prescribed by the DGCA/manufacturer; and
- (c) within the mass limitations imposed by compliance with the applicable noise certification Standards in ICAO Annex 16, Volume 1, unless otherwise authorized, in exceptional circumstances for a certain heliport where there is no noise disturbance problem, by the competent authority of the State in which the heliport is situated.

3.2 Placards, listing, instrument markings, or combinations thereof, containing those operating limitations prescribed by the manufacturer for visual presentation, shall be displayed in the helicopter.

3.3 Single-engine helicopters shall not be permitted to operate from elevated heliports or helidecks in a congested hostile environment.

## 4. HELICOPTERS INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

### 4.1 All helicopters on all flights

#### 4.1.1 General

In addition to the minimum equipment necessary for the issuance of a certificate of airworthiness, the instruments, equipment and flight documents prescribed in the following paragraphs shall be installed or carried, as appropriate, in helicopters according to the helicopter used and to the circumstances under which the flight is to be conducted.

#### 4.1.2 Instruments

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

#### 4.1.3 Equipment

4.1.3.1 A helicopter shall be equipped with or carry on board:

- (a) an accessible first-aid kit;
- (b) portable fire extinguishers of a type which, when discharged, will not cause dangerous contamination of the air within the helicopter. At least one shall be located in:
  - 1) the pilot's compartment; and
  - 2) each passenger compartment that is separate from the pilot's compartment and not readily accessible to the pilot or co-pilot;

*Note.—Refer to 4.1.3.2 for fire extinguishing agents.*

- (c) 1) a seat or berth for each person over an age of two years; and
  - 2) a seat belt for each seat and restraining belts for each berth;
- (d) the following manuals, charts and information:
  - 1) the flight manual or other documents or information concerning any operating limitations prescribed for the helicopter by the DGCA/ Manufacturer, required for the application of para 3;
  - 2) any specific approval issued by the DGCA, if applicable, for the operation(s) to be conducted;

- 3) current and suitable charts for the route of the proposed flight and all routes along which it is reasonable to expect that the flight may be diverted;
  - 4) procedures, as prescribed in CAR Section 9 Series 'C' Part I, for pilot-in-command of intercepted aircraft; and
  - 5) a list of visual signals for use by intercepting and intercepted aircraft, as contained in CAR Section 9 Series 'C' Part I, and
  - 6) the journey log book for the helicopter; and
- (e) if fuses are used, spare electrical fuses of appropriate ratings for replacement of those accessible in flight.

4.1.3.2 Any agent used in a built-in fire extinguisher for each lavatory disposal receptacle for towels, paper or waste in a helicopter 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 2016 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.*

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

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

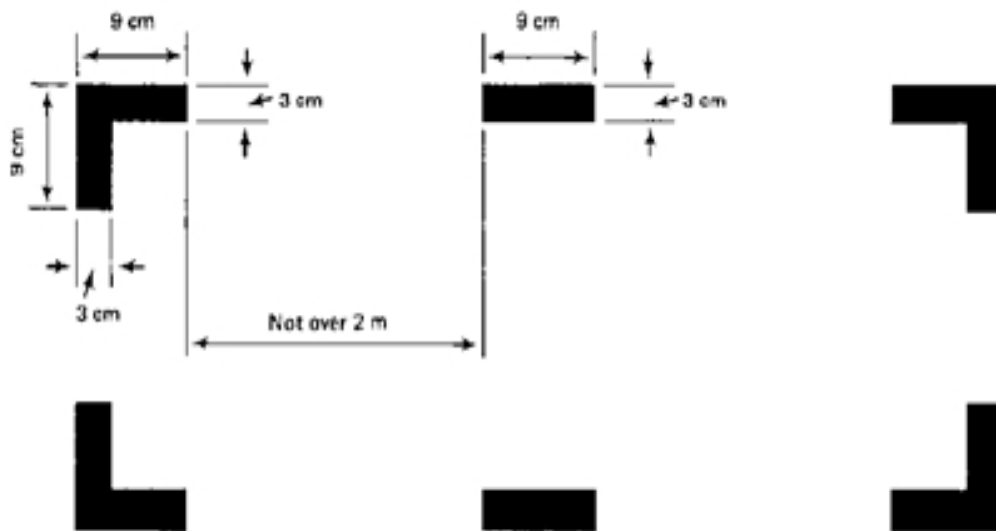
*Note. - Safety harness includes shoulder strap(s) and a seat belt which may be used independently.*

#### **4.1.4 Marking of break-in points**

4.1.4.1 If areas of the fuselage suitable for break-in by rescue crews in an emergency are marked on a helicopter, such areas shall be marked as shown in Appendix-1. The colour of the markings shall be red or yellow, and if necessary they shall be outlined in white to contrast with the background.

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

*Note - Para 4.1.4 does not require all helicopters to have break in areas.*



## 4.2 Instruments and equipment for flights operated under VFR and IFR - by day and night

4.2.1 All helicopters when operated in accordance with VFR by day shall be:

(a) equipped with:

- 1) a magnetic compass;
- 2) an accurate timepiece indicating the time in hours, minutes and seconds;
- 3) a sensitive pressure altimeter;
- 4) an airspeed indicator;
- 5) main rotor rpm indicator;
- 6) fuel quantity indicator for each tank;
- 7) Torque indicator, where applicable; and
- 8) such additional instruments or equipment as may be prescribed by DGCA.

(b) equipped with, or shall carry, a means of measuring and displaying the time in hours, minutes and seconds.

4.2.2 All helicopters when operating in accordance with VFR at night shall be equipped with:

- 1) the equipment specified in 4.2.1;
- 2) an attitude indicator (artificial horizon) for each required pilot;
- 3) a slip indicator;
- 4) a heading indicator (directional gyroscope);
- 5) a rate of climb and descent indicator;
- 6) such additional instruments or equipment as may be prescribed by the appropriate authority;

and the following lights:

- 7) the lights required by Annex 2 for aircraft in flight or operating on the movement area of a heliport;

*Note.— The general characteristics of the lights are specified in Annex 8.*

- 8) a landing light;
- 9) illumination for all flight instruments and equipment that are essential for the safe operation of the helicopter;
- 10) lights in all passenger compartments; and
- 11) a flashlight for each crew member station.

4.2.3 All helicopters, when operating in accordance with IFR, or when the helicopter cannot be maintained in a desired attitude without reference to one or more flight instruments, shall be:

(a) equipped with:

- 1) a magnetic compass;
- 2) a sensitive pressure altimeter;

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

- 3) an airspeed indicating system with a means of preventing malfunctioning due to either condensation or icing;

- 4) a slip indicator;
  - 5) an attitude indicator (artificial horizon) for each required pilot and one additional attitude indicator;
  - 6) a heading indicator (directional gyroscope);
  - 7) a means of indicating whether the supply of power to the gyroscopic instruments is adequate;
  - 8) a means of indicating on the flight deck the outside air temperature;
  - 9) a rate of climb and descent indicator;
  - 10) such additional instruments or equipment as may be prescribed by the appropriate authority;
  - 11) if operated by night, the lights specified in 4.2.2 g) to k) and 4.2.2.1; and
- (b) equipped with, or shall carry, a means of measuring and displaying the time in hours, minutes and seconds.

4.2.4 One of the landing lights shall be trainable, at least in the vertical plane for all the helicopters.

### 4.3 All helicopters on flights over water

4.3.1 *Means of floatation.* All helicopters intended to be flown over water shall be fitted with a permanent or rapidly deployable means of floatation so as to ensure a safe ditching of the helicopter when:

- (a) engaged in offshore operations or other over-water operations; or
- (b) flying beyond auto-rotational distance from land in single engine-helicopters.

### 4.3.2 Emergency equipment

4.3.2.1 Helicopters operating in accordance with the provisions of 4.3.1 shall be equipped with:

- (a) one life jacket, or equivalent individual floatation device, for each person on board, stowed in a position easily accessible from the seat or berth of the person for whose use it is provided;
- (b) when not precluded by consideration related to the type of helicopter used, life-saving rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency, provided with such life-saving equipment including means of sustaining life as is appropriate to the flight to be undertaken; and

(c) equipment for making the pyrotechnical distress signals.

4.3.2.2 When taking off or landing at a heliport where the take-off or approach path is so disposed over water that in the event of a mishap there would be likelihood of a ditching, at least the equipment required in 4.3.2.1 (a) shall be carried.

4.3.2.3 Each life jacket and equivalent individual floatation device, when carried in accordance with this 4.3, shall be equipped with a means of electric illumination for the purpose of facilitating the location of persons.

4.3.2.4 Rafts which are not deployable by remote control and which have a mass of more than 40 kg should be equipped with some means of mechanically assisted deployment.

**4.4 All helicopters on flights over designated land areas.** Helicopters, when operated across land areas which have been designated by Airports Authority of India as areas in which search and rescue would be especially difficult, shall be equipped with such signalling devices and life-saving equipment (including means of sustaining life) as may be appropriate to the area over flown.

#### **4.5 All helicopters on high altitude flights**

4.5.1 *Unpressurized helicopters.* Unpressurized helicopters intended to be operated at high altitudes shall carry equipment for storing and dispensing the oxygen supplies required in 2.10.1.

4.5.2 *Pressurized helicopters.* Pressurized helicopters intended to be operated at high altitudes shall carry emergency oxygen storage and dispensing equipment capable of storing and dispensing the oxygen supplies required in 2.10.2.

**4.6 All helicopters required to comply with the noise certification Standards.** All helicopters required to comply with the noise certification Standards shall carry a noise certificate as required in CAR Section 2 Series F part III and CAR 21.

#### **4.7 Flight recorders**

4.7.1 All helicopter shall be fitted with flight data recorder and cockpit voice recorder in accordance with CAR Section 2, Series 'I' Part V and VI, respectively.

4.7.2 *Operation.*

4.7.2.1 Flight recorders shall not be switched off during flight time.

4.7.2.2 To preserve flight recorder records, flight recorders shall be deactivated upon completion of flight time following an accident or incident. The flight recorders shall not be reactivated before their disposition as determined in accordance with Annex 13.



*Note 1.— The need for removal of the flight recorder records from the aircraft will be determined by the investigation authority in the State conducting the investigation with due regard to the seriousness of an occurrence and the circumstances, including the impact on the operation.*

*Note 2.— The operator/owner's responsibilities regarding the retention of flight recorder records are contained in Section II, 9.6.*

**4.7.3 Continued serviceability.** Operational checks and evaluations of recordings from the flight recorder systems shall be conducted to ensure the continued serviceability of the recorders.

*Note.— Procedures for the inspections of the flight recorder systems are given in Appendix 4.*

**4.7.4 Flight recorders electronic documentation.** The documentation requirement concerning FDR parameters provided by operator/owners to accident investigation authorities should be in electronic format and take account of industry specifications.

#### **4.8 Emergency locator transmitter (ELT)**

**4.8.1** All helicopters operating in performance Class 1 and 2 shall be equipped with at least one automatic ELT and, when operating on flights over water as described in 4.3.1 a), with at least one automatic ELT and one ELT(S) in a raft or life jacket.

**4.8.2** All helicopters operating in performance Class 3 shall be equipped with at least one automatic ELT.

**4.8.3** ELT equipment carried to satisfy the requirements of 4.8.1 and 4.8.2 shall operate in accordance with the relevant provisions of Annex 10, Volume III.

*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.*

#### **4.9 Helicopter required to be equipped with pressure altitude reporting transponder.**

**4.9.1** All helicopters shall, unless exempted by the DGCA, be equipped with a pressure altitude reporting transponder in accordance with CAR Section 2 Series 'R' Part IV.

#### **4.10 Microphones**

All flight crew members required to be on flight deck duty shall communicate through boom or throat microphones.

#### **4.11 Helicopters equipped with automatic landing systems, a head-up display (HUD) or equivalent displays, enhanced vision systems (EVS) synthetic vision systems (SVS) and/ or combined vision systems (CVS)**

4.11.1 Where helicopters are equipped with automatic landing systems, a HUD or equivalent displays, EVS, SVS or CVS, or any combination of those systems into a hybrid system, criteria for the use of systems for the safe operation of a helicopter shall be approved by the DGCA.

*Note.— 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).*

4.11.2 In establishing operational criteria for the use of automatic landing systems, HUD or equivalent displays, EVS, SVS or CVS, the operator shall ensure that:

- (a) the equipment meets the appropriate airworthiness certification requirements;
- (b) the operator/ owner has carried out a safety risk assessment associated with the operations supported by the automatic landing systems, HUD or equivalent displays, EVS, SVS or CVS;
- (c) the operator/ owner has established and documented the procedures for the use of, and training requirements for, automatic landing systems, HUD or equivalent displays, EVS, SVS or CVS.

*Note 1.— Guidance on safety risk assessments is contained in the Safety Management Manual (SMM) (Doc 9859).*

#### **4.12 Electronic flight bags (EFBs)**

4.12.1 *EFB equipment.* Where portable EFBs are used on board, the pilot-in-command and the owner shall ensure that they do not affect the performance of the helicopter systems, equipment or the ability to operate the helicopter.

4.12.2 *EFB functions.*

4.12.2.1 Where EFBs are used on board a helicopter the pilot-in-command and/or the owner shall:

- (a) assess the safety risk(s) associated with each EFB function;
- (b) establish 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).*

- 4.12.2.2 DGCA shall establish criteria for the operational use of EFB functions to be used for the safe operations of helicopters.

#### 4.12.3 EFB operational criteria

In establishing criteria for the operational use of EFBs, DGCA shall ensure that:

- (a) the EFB equipment and its associated installation hardware, including interaction with helicopter systems if applicable, meet the appropriate airworthiness certification requirements;
- (b) the owner has assessed the risks associated with the operations supported by the EFB function(s);
- (c) the owner has established requirements for redundancy of the information (if appropriate) contained and displayed by the EFB function(s);
- (d) the owner has established and documented procedures for the management of the EFB function(s) including any databases it may use; and
- (e) the owner has established and documented the procedures for the use of, and training requirements for, the EFB function(s).

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

## 5. HELICOPTER COMMUNICATION, NAVIGATION AND SURVEILLANCE EQUIPMENT

### 5.1 Communication equipment

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

*Note.— The requirements of 5.1.1 are considered fulfilled if the ability to conduct the communications specified therein is established during radio propagation conditions which are normal for the route.*

5.1.2 When compliance with 5.1.1 requires that more than one communication equipment unit be provided, each shall be independent of the other or others to the extent that a failure in any one will not result in failure of any other.

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

5.1.4 A helicopter to be operated on a flight to which the provisions of 4.3 or 4.4 apply shall, unless exempted by DGCA, be provided with radio communication equipment capable of conducting two-way communication at any time during flight with such aeronautical stations and on such frequencies as may be prescribed by the appropriate authority.

5.1.5 The radio communication equipment required in accordance with 5.1.1 to 5.1.4 should provide for communication on the aeronautical emergency frequency 121.5 MHz.

5.1.6 For operations where communication equipment is required to meet an RCP specification for *performance-based communication* (PBC), a helicopter shall, in addition to the requirements specified in 5.1.1 to 5.1.5:

- (a) be provided with communication equipment which will enable it to operate in accordance with the prescribed RCP specification(s); and
- (b) have information relevant to the helicopter RCP specification capabilities listed in the flight manual or other helicopter documentation, approved by the DGCA/ State of Design; and
- (c) where the helicopter is operated in accordance with a MEL, have information relevant to the helicopter 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).

5.1.7 DGCA shall establish criteria for operations where an RCP specification for PBC has been prescribed.

5.1.8 In establishing criteria for operations where an RCP specification for PBC has been prescribed, the operator/owner shall establish:

- (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.

5.1.9 DGCA shall ensure that, in respect of those helicopters mentioned in 5.1.6, adequate provisions exist for:

- (a) receiving the reports of observed communication performance issued by monitoring programmes established in accordance with Annex 11, Chapter 3, 3.3.5.2; and
- (b) taking immediate corrective action for individual helicopters, helicopter types or operators, identified in such reports as not complying with the RCP specification.

## **5.2 Navigation equipment**

5.2.1 A helicopter shall be provided with navigation equipment which will enable it to proceed:

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

5.2.2 For operations where a navigation specification for performance-based navigation (PBN) has been prescribed, a helicopter shall, in addition to the requirements specified in 5.2.1:

- (a) be provided with navigation equipment which will enable it to operate in accordance with the prescribed navigation specification(s);
- (b) have information relevant to the helicopter navigation specification capabilities listed in the flight manual or other helicopter documentation approved by the State of the Design or State of Registry; and
- (c) where the helicopter is operated in accordance with a MEL, have information relevant to the helicopter navigation specification capabilities included in the MEL.

5.2.3 DGCA shall establish criteria for operations where a navigation specification for PBN has been prescribed.

5.2.4 In establishing criteria for operations where a navigation specification for PBN has been prescribed, the operator/ owner shall establish:

- (a) normal and abnormal procedures including contingency procedures;
- (b) flight crew qualification and proficiency requirements in accordance with the appropriate navigation specifications;
- (c) training 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.*

5.2.5 DGCA/ the State of Registry 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).*

5.2.6 The helicopter 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 helicopter to navigate in accordance with 5.2.1 and, where applicable, 5.2.2.

*Note.— For international general aviation, this requirement may be met by means other than the duplication of equipment.*

5.2.7 On flights in which it is intended to land in instrument meteorological conditions a helicopter shall be provided with radio equipment capable of receiving signals providing guidance to a point from which a visual landing can be effected. This equipment shall be capable of providing such guidance at each heliport at which it is intended to land in instrument meteorological conditions and at any designated alternate heliports.

### 5.3 Surveillance equipment

5.3.1 A helicopter shall be provided with surveillance equipment which will enable it to operate in accordance with the requirements of air traffic services.

5.3.2 For operations where surveillance equipment is required to meet an RSP specification for performance-based surveillance (PBS), a helicopter shall, in addition to the requirements specified in 5.3.1:

- (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 helicopter RSP specification capabilities listed in the flight manual or other helicopter documentation approved by the State of Design or DGCA; and
- (c) where the helicopter is operated in accordance with a MEL, have information relevant to the helicopter 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).*

5.3.3 DGCA shall establish criteria for operations where an RSP specification for PBS has been prescribed.

5.3.4 In establishing criteria for operations where an RSP specification for PBS has been prescribed, DGCA shall require that the operator/owner establish:

- (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.

5.3.5 DGCA shall ensure that, in respect of those helicopters mentioned in 5.3.2, adequate provisions exist for:

- (a) receiving the reports of observed surveillance performance issued by monitoring programmes established in accordance with Annex 11, Chapter 3, 3.3.5.2; and
- (b) taking immediate corrective action for individual helicopter, helicopter types or operators, identified in such reports as not complying with the RSP specification.

## 6. HELICOPTER MAINTENANCE

Maintenance requirements are contained in CAR-145 and CAR-M.

## 7. HELICOPTER FLIGHT CREW

*7.1 Qualifications.* The pilot-in-command shall ensure that the licences of each flight crew member have been issued or rendered valid by DGCA, and are properly rated and of current validity, and shall be satisfied that flight crew members have maintained competence.

*7.2 Composition of the flight crew.* The number and composition of the flight crew shall not be less than that specified in the flight manual or other documents associated with the certificate of airworthiness.

8. The owner / lessee in case of leased helicopter, shall prepare a manual detailing the procedure for complying with the requirements laid down in this CAR. The owner /lessee in case of leased helicopter shall ensure that all concerned personnel are given adequate briefing about the content of this manual and the method of compliance.

( BS Bhullar)  
Director General of Civil Aviation