



GOVERNMENT OF INDIA
OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION
TECHNICAL CENTRE, OPPOSITE SAFDURJUNG AIRPORT, NEW DELHI - 110003

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1. Introduction

- 1.1. This CAR is issued under the provision of Rule 29C and Rule 133A of the Aircraft Rules 1937 for adoption of the minimum operational, equipment and instrument requirements of ICAO as per Annex 6 Part III. It specifies the operational, equipment and crew framework for helicopters registered in India and engaged in all forms of commercial air transport operations.

2. Applicability

- 2.1 This CAR prescribes requirements applicable to the operation of any civil helicopter for the purpose of commercial air transportation by any operator whose principal place of business is in India. These requirements are applicable to all Air Operator Permit Holders undertaking commercial helicopter operations.

3. Definitions

- 3.1 **Aircraft Operating Manual (Flight Crew Operating Manual-FCOM).** 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.

- 3.5 **Air Operator Permit.** An operating certificate or an equivalent document issued by DGCA authorizing an operator to carry out specified commercial air transport operations.
- 3.6 **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:
- 3.7 **Take-off Alternate.** An alternate heliport at which a helicopter can land should this become necessary shortly after take-off and it is not possible to use the heliport of departure.
- 3.8 **En-route Alternate.** A heliport at which a helicopter would be able to land after experiencing an abnormal or emergency condition while en-route.
- 3.9 **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.

- 3.10 **Approach and Landing Operations using Instrument Approach Procedures.** Instrument approach and landing operations are classified as follows:

- 3.10.1 Non-precision approach and landing operation. An instrument approach and landing which utilizes lateral guidance but does not utilize vertical guidance.
- 3.10.2 Approach and landing operations with vertical guidance. An instrument approach and landing which utilizes lateral and vertical guidance but does not meet the requirements established for precision approach and landing operations.
- 3.10.3 Precision approach and landing operations. An instrument approach and landing using precision lateral and vertical guidance with minima as determined by the category of operation.

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

- (a) a ground-based navigation aid, or
- (b) computer generated navigation data.

3.11 **Approach and Landing Phase - Helicopters.** That part of the flight from 1000ft (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.

3.12 **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.

3.13 **Instrument Approach Operations.** It 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:

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

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

3.13.3 **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 550m;

3.13.4 **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;

3.13.5 **Category IIIA (CAT IIIA):** a decision height lower than 30 m (100 ft) or no decision height and a runway visual range not less than 175 m;

3.13.6 **Category IIIB (CAT IIIB):** a decision height lower than 15 m (50 ft), or no decision height and a runway visual range less than 175 m but not less than 50 m; and

3.13.7 **Category IIIC (CAT IIIC):** no decision height and 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 IIIA but with an RVR in the range of CAT IIIB would be considered a CAT IIIB operation or an operation with a DH in

the range of CAT II but with an RVR in the range of CAT I would be considered a CAT II operation).

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.

- 3.14 **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.
- 3.15 **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.
- 3.16 **Combined Vision System (CVS).** A system to display images from a combination of an enhanced vision system (EVS) and a synthetic vision system (SVS).
- 3.17 **Commercial Air Transport Operation.** An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.
- 3.18 **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.
- 3.19 **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.
- 3.20 **Congested Area.** In relation to a city, town or settlement, any area which is substantially used for residential, commercial or recreational purposes.
- 3.21 **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.
- 3.22 **Congested Hostile Environment.** A hostile environment within a congested area.
- 3.23 **Controlled Flight.** Any flight which is subject to an air traffic control clearance.

3.24 **Control Zone.** A controlled airspace extending upwards from the surface of the earth to a specified upper limit.

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

3.26 **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.

3.27 **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 111 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".

3.28 **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.

3.29 **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.

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

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

- 3.32 **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.
- 3.33 **Elevated Heliport.** A heliport located on a raised structure on land.
- 3.34 **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:
- 3.34.1 **Automatic Fixed ELT (ELT (AF)).** An automatically activated ELT which is permanently attached to an aircraft.
 - 3.34.2 **Automatic Portable ELT (ELT (AP)).** An automatically activated ELT which is rigidly attached to an aircraft but readily removable from the aircraft.
 - 3.34.3 **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.
 - 3.34.4 **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.
- 3.35 **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).
- 3.36 **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).
- 3.37 **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.
- 3.38 **Exposure Time.** The actual period during which the performance of the helicopter with the critical power unit inoperative in still air does not guarantee

a safe forced landing or the safe continuation of the flight. (See also definition of maximum permitted exposure time).

- 3.39 **Final Approach and Take-Off Area (FATO).** A defined area over which the final phase of the approach manoeuvre to hover or landing is completed and from which the take-off manoeuvre is commenced. Where the FATO is to be used by performance Class I helicopters, the defined area includes the rejected take-off area available.
- 3.40 **Final Approach Segment (FAS).** That segment of an instrument approach procedure in which alignment and descent for landing are accomplished.
- 3.41 **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.
- 3.42 **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.
- 3.43 **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.
- 3.44 **Flight Plan.** Specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft.
- 3.45 **Flight Recorder.** Any type of recorder installed in the aircraft for the purpose of complementing accident/ incident prevention and investigation.
- 3.46 **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.
- 3.47 **Flight Simulation Training Device.** Any one of the following three types of apparatus in which flight conditions are simulated on the ground:
- 3.47.1 **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;

3.47.2 **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;

3.47.3 **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.

3.48 **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.

3.49 **General Aviation Operation.** An aircraft operation other than a commercial air transport operation or an aerial work operation.

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

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

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

3.53 **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.

3.54 **Heliport Operating Minima.** The limits of usability of a heliport for:

3.54.1 take-off, expressed in terms of runway visual range and/or visibility and, if necessary, cloud conditions;

3.54.2 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;

- 3.54.3 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.

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

- 3.55.1 A safe forced landing cannot be accomplished because the surface and surrounding environment are inadequate; or
- 3.55.2 The helicopter occupants cannot be adequately protected from the elements; or
- 3.55.3 Search and rescue response/ capability is not provided consistent with anticipated exposure; or
- 3.55.4 There is an unacceptable risk of endangering persons or property on the ground;

3.56 **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.

3.57 **Human Performance.** Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

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

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

3.60 **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;

- 3.60.1 A 2-dimensional (2D) instrument approach operation, using lateral navigation guidance only;
- 3.60.2 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 ; Ground – based radio navigation aids; or Computer-generated navigation data from ground – based, space – based, self-contained navigation aids or a combination of these.

3.61 **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:

3.61.1 **Non-precision Approach (NPA) Procedure.** An instrument approach procedure which utilizes lateral guidance but does not utilize vertical guidance.

3.61.2 **Approach Procedure with Vertical Guidance (APV).** An instrument approach procedure which utilizes lateral and vertical guidance but does not meet the requirements established for precision approach and landing operations.

3.61.3 **Precision Approach (PA) Procedure.** An instrument approach procedure using precision lateral and vertical guidance with minima as determined by the category of operation.

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

- (a) A ground-based navigation aid; or
- (b) computer-generated navigation data.

3.62 **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.

3.63 **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

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

3.65 **Landing decision point (LDP).** The point used in determining landing performance from which, a power unit failure having been recognized at this point, the landing may be safely continued or a baulked landing initiated.

Note.- LDP applies to Performance Class I helicopters.

3.66 **Landing Distance Available (LDAH).** The length of the final approach and takeoff area plus any additional area declared available and suitable for helicopters to complete the landing manoeuvre from a defined height.

- 3.67 **Landing Distance Required (LDRH).** The horizontal distance required to land and come to a full stop from a point 15 m (50 ft) above the landing surface.
- 3.68 **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 balked landing initiated.
- 3.69 **Maximum Approved Passenger Seating Configuration (MAPSC).** The maximum passenger seating capacity of an individual helicopter, excluding crew seats, used by the operator, approved by the DGCA and included in the Operations Manual.
- 3.70 **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.
- 3.71 **Maximum Permitted Exposure Time.** A period, determined on the basis of the power unit failure rate recorded for the helicopter's engine type, during which the probability of a power unit failure can be discounted. (See also definition of exposure time).
- 3.72 **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.
- 3.73 **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.
- 3.74 **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.
- 3.75 **Maximum Mass.** Maximum certificated take-off mass.
- 3.76 **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.

- 3.77 **Maximum Take-Of Mass.** The maximum permissible total helicopter mass at take-off.
- 3.78 **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.
- 3.79 **Mountain / Hill Flying.** Operations to/from a helipad which has surrounding terrain at or above 5000 feet within a 25 nm radius, are defined as mountain operations.
- 3.80 **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:
- 3.80.1 **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.
- 3.80.2 **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 11, 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.

- 3.81 **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.

- 3.82 **Non-Congested Hostile Environment.** A hostile environment outside a congested area.

- 3.83 **Non-Hostile Environment:** An environment in which:

- 3.83.1 A safe forced landing can be accomplished because the surface and surrounding environment are adequate;
- 3.83.2 The helicopter occupants can be adequately protected from the elements;
- 3.83.3 Search and rescue response/capability is provided consistent with the anticipated exposure; and
- 3.83.4 The assessed risk of endangering persons or property on the ground is acceptable.

Note : Those parts of a congested area satisfying the above requirements are considered non hostile.

- 3.84 **Obstacle.** Obstacles include the surface of the earth, whether land or sea.

- 3.85 **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".

- 3.86 **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.

- 3.87 **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, hell-hoist operations or emergency medical service.

- 3.88 **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.
- 3.89 **Operational Flight Plan.** The operator's plan for the safe conduct of the flight based on considerations of helicopter performance, other operating limitations and relevant expected conditions on the route to be followed and at the heliports concerned.
- 3.90 **Operations in Performance Class 1.** Operations with performance such that, in the event of a critical power-unit failure, performance is available to enable the helicopter to safely continue the flight to an appropriate landing area, unless the failure occurs prior to reaching the take-off decision point (TDP) or after passing the landing decision point (LDP), in which cases the helicopter must be able to land within the rejected take-off or landing area.
- 3.91 **Operations in Performance Class 2.** Operations with performance such that, in the event of critical engine failure, performance is available to enable the helicopter to safely continue the flight to an appropriate landing area, except when the failure occurs early during the take-off manoeuvre or late in the landing manoeuvre, in which cases a forced landing may be required.
- 3.92 **Operations in Performance Class 3.** Operations with performance such, that in the event of an engine failure at any time during the flight, a forced landing will be required.
- 3.93 **Operations Manual.** A manual containing procedures, instructions and guidance for use by operational personnel in the execution of their duties.
- 3.94 **Operations Specifications.** The authorizations, conditions and limitations associated with the air operator permit/ certificate and subject to the conditions in the operations manual.
- 3.95 **Operator.** A person, organization or enterprise engaged in or offering to engage in an aircraft operation.
- 3.96 **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.

- 3.97 **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.

- 3.98 **Psychoactive Substances.** Alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psychostimulants, hallucinogens, and volatile solvents, whereas coffee and tobacco are excluded.

- 3.99 **R.** Rotor radius.

- 3.100 **Rejected Take-Off Distance Available (RTODAH).** The length of the final approach and take-off area declared available and suitable for helicopters operated in Performance Class 1 to complete a rejected take-off.

- 3.101 **Rejected Take-Off Distance Required (RTODRH).** The horizontal distance required from the start of the take-off to the point where the helicopter comes to a full stop following a power unit failure and rejection of the take-off at the take-off decision point.

- 3.102 **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.

- 3.103 **Reported Headwind Component.** Reported headwind component is interpreted as being that reported at the time of flight planning and may be used provided there is no significant change of un-factored wind prior to take-off.

- 3.104 **Required Communication Performance (RCP).** A statement of the performance requirements for operational communication in support of specific ATM functions.

- 3.105 **Required Communication Performance Type (RCP Type).** A label (e.g. RCP 240) that represents the values assigned to RCP parameters for communication transaction time, continuity, availability and integrity.

- 3.106 **Required Navigation Performance (RNP).** A statement of the navigation performance necessary for operation within a defined airspace.

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

- 3.107 **Rest Period.** Any period of time on the ground during which a flight crew member is relieved of all duties by the operator.
- 3.108 **Rotation Point (RP).** The rotation point is defined as the point at which a cyclic input is made to initiate a nose-down attitude change during the take-off flight path. It is the last point in the take-off path from which, in the event of an engine failure being recognized, a forced landing on the deck can be achieved.
- 3.109 **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.
- 3.110 **Safe Forced Landing.** Unavoidable landing or ditching with a reasonable expectancy of no injuries to persons in the aircraft or on the surface.
- 3.111 **Safety Management System.** A systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures
- 3.112 **Safety Programme.** An integrated set of regulations and activities aimed at improving safety.
- 3.113 **Series of Flights.** Consecutive flights that begin and end within a period of 24 hours; and are all conducted by the same pilot-in-command.
- 3.114 **Special VFR Flight.** A VFR flight cleared by air traffic control to operate within a control zone in meteorological conditions below VMC.
- 3.115 **State of the Aerodrome.** The State in whose territory the aerodrome is located.
- Note.— State of the Aerodrome includes heliports and landing locations.
- 3.116 **Synthetic Vision system (SVS).** A system to display data-derived synthetic images of the external scene from the perspective of the flight deck.
- 3.117 **State of Registry.** The State on whose register the aircraft is entered.
- 3.118 **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.

- 3.119 **Take-off and Initial Climb Phase.** That part of the flight from the start of take-off to 500 feet (150 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.
- 3.120 **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.
- 3.121 **Take-Off Distance Available (TODAH).** The length of the final approach and take-off area plus the length of helicopter clearway (if provided) declared available and suitable for helicopters to complete the take-off.
- 3.122 **Take-off Distance Required (TODRH).** The horizontal distance required from the start of the take-off to the point at which V_{TOSS} , a selected height and a positive climb gradient are achieved, following failure of the critical power unit being recognized at TDP, the remaining power units within approved operating limits. The selected height is to be determined with the use of Helicopter Flight Manual data, and is to be at least 10.7 m (35 ft) above:
- 3.122.1 the take-off surface; or
 - 3.122.2 as an alternative, a level defined by the highest obstacle in the take-off distance required.
- 3.123 **Take-Off Flight Path.** The vertical and horizontal path, with the critical power unit inoperative, from a specified point in the take-off to 1000 ft above the surface.
- 3.124 **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.
- 3.125 **Traffic Load.** The total mass of passengers, baggage and cargo, including any non-revenue load.
- 3.126 **Touchdown and Lift-Off Area (TLOF).** A load bearing area on which a helicopter may touchdown or lift off.
- 3.127 **VFR flight.** A flight conducted in accordance with the visual flight rules.
- 3.128 **VFR.** The symbol used to designate the visual flight rules.
- 3.129 **Visual Meteorological Conditions (VMC).** Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling equal to or better than specified minima.

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

Note. - The specified minima are contained in CAR Section 9 Series 'C' Part 1.

3.131 **V_{Toss}**. 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.

3.132 **V_y**. Best rate of climb speed.

4. Compliance with Laws, Regulations and Procedures

- 4.1. The operator engaged in helicopter operations shall ensure that all employees are fully aware and shall comply with the laws, regulations and procedures of the DGCA and when abroad, know that they must comply with the laws, regulations and procedures of the States in which their helicopters are operated.
- 4.2. 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 heliport or landing site 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 helicopter.
- 4.3. Operators shall ensure that flight crew members demonstrate the ability to speak and understand the English language used for radiotelephony communications as specified in para 6A (Language Proficiency) of Sec A Schedule 2 of Aircraft Rules 1937.
- 4.4. An operator or a designated representative shall have responsibility for operational control.
- 4.5. Responsibility for operational control shall be delegated only to the pilot-in-command and 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.
- 4.6. If an emergency situation which endangers the safety of the helicopter or persons becomes known first to the flight operations officer/ flight dispatcher, action by that person shall include, where necessary, notification to the appropriate authorities of the nature of the situation without delay, and requests for assistance if required.

4.7. If an emergency situation occurs within India, which endangers the safety of the helicopter or persons necessitates the taking of action which involves a violation of regulations or procedures, the pilot-in-command/ operator shall notify the nearest Air Safety office of DGCA without delay. In the event such emergency situation occurs outside India, the pilot-in-command shall notify the appropriate local authority without delay and if required by the State in which the incident occurs, the pilot-in-command shall also submit a report of the occurrence on any such violation to the appropriate authority of such State. The pilot-in-command shall submit a copy of the occurrence to the DGCA marked attention of Director of Air Safety (Headquarters) with a copy endorsed to the Regional Air Safety Office where the helicopter is normally based. Such reports shall be submitted within 48 hours.

4.8. Operators shall ensure that pilot-in-command have available on board the helicopter, all the essential information concerning the search and rescue services in the area over which the helicopter 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.

4.9. An operator shall establish and maintain an accident prevention and flight safety programme as per the requirements given in CAR Section 5, Series F Part I.

4.10. An operator of a helicopter fitted with a flight data recorder should establish and maintain a flight data analysis programme as part of its accident prevention and flight safety programme in accordance with CAR Section 5, Series 'F' Part II.

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.

4.11. Any flight data analysis programme shall be non-punitive and contain adequate safeguards to protect the source(s) of the data.

5. Compliance with DGCA Rules and Regulations by Foreign Operators.

5.1. When DGCA identifies a case of non-compliance or suspected non-compliance by a foreign operator with laws, regulations and procedures applicable within India or a similar serious safety issue with that operator, then DGCA shall immediately notify the operator and, if the issue warrants it, the State of Registry.

5.2. In the case of notification to State of Registry as specified in 5.1, if the issue and its resolution warrant it, DGCA shall engage in consultations with the State of the Operator and the State of Registry, as applicable, concerning the safety standards maintained by the operator.

6. **Safety Management.** Refer CAR Section 1 Series C Part I.
7. **Dangerous Goods.** The operator shall adhere to the provisions for carriage of dangerous goods as contained in Aircraft (Carriage of Dangerous Goods) Rules, 2003 and CAR Section 11.
8. **Use of Psychoactive Substances.** The operator 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.
9. **Operating Facilities.** An 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 helicopter 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 this CAR 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. An 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.

10. **Air Operator Permit / Certificate**

- 10.1 An operator shall not engage in commercial air transport operations unless in possession of a valid Air Operator Permit issued by DGCA in accordance with the procedure specified in CAP 3100, refer CAR Section 3 Series C Part III.
- 10.2 DGCA shall carry out surveillance of the permit holders to ensure continued surveillance so that the required standards of operations are maintained. The operator shall ensure that its capability to undertake air transport operations and maintenance of aircraft is not allowed to degrade and shall ensure compliance with CAR Section 2 Series 'A' Part IV and CAR Section 8 Series 'A' Part II in this regard.
- 10.3 **Power to Inspect.** An operator shall ensure that any person authorized by the DGCA is permitted at any time to board and fly in any helicopter operated in accordance with an AOP issued by the DGCA and in accordance with Aircraft Rule 1937 read with GOI SO 726 and 727 (E) of 04 Oct 1994.

11. **Production of Documentation and Records.**

- 11.1 An operator shall:

- 11.1.1 Give any person authorized by the DGCA access to any documents and records which are related to flight operations or maintenance; and
- 11.1.2 Produce all such documents and records, when requested to do so by the DGCA, within a reasonable period of time.
- 11.2 The PIC shall, within a reasonable time of being requested to do so by a person authorized by the DGCA, produce to that person the documentation required to be carried on board.
- 11.3 **Preservation of Documentation.** An operator shall ensure that:
 - 11.3.1 Any original documentation, or copies thereof, that he is required to preserve is preserved for the required retention period even if he ceases to be the operator of the helicopter; and
 - 11.3.2 Where a crew member, in respect of whom an operator has kept a record, becomes a crew member for another operator, that record is to be made available to the new operator.

12. Surveillance of Operations by a Foreign Operator

- 12.1 An air operator certificate issued by another Contracting State, shall be recognized as valid, provided that the requirements under which the certificate was issued are at least equal to the applicable requirements specified in this CAR.
- 12.2 DGCA shall conduct surveillance of operators while operating through India as per the established programme and take appropriate action when necessary to preserve safety. The notification and procedure to conduct such surveillance is given in AIC 5 of 2009.
- 12.3 An operator shall meet and maintain the requirements established by DGCA while operating through India.

Note.—Guidance on the surveillance of operations by foreign operators may be found in the Manual of Procedures for Operations Inspection, Certification and Continued Surveillance (Doc 8335).

13. Operations Manual and Rotorcraft Flight Manual

- 13.1 The operator shall provide operations staff and flight crew an Operations Manual and a Rotorcraft Flight Manual for each aircraft type operated, containing the normal, abnormal and emergency procedures relating to the operation of the aircraft. The Operations Manual shall include details of the aircraft systems and of the checklists to be used. The design of the Operations

Manual shall observe human factors principles. The Flight manual shall be easily accessible to the flight crew during all flight operations.

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

13.2 Instructions on preparation of the Operations Manual are contained in CAP 8100.

14. Checklists. Refer CAR Section 8 Series D Part II dated 03 Sep 2013 on Preparation and Use of Cockpit and Emergency Checklists.

15. Mandatory Documents for all Flights. Refer CAR Section 2 Series X Part VII.

15.1 Additional Information and Forms to be carried. An operator shall ensure that, in addition to the documents and manuals prescribed above, the following information and forms, relevant to the type and area of operation, are carried on each flight:

15.1.1 Operational Flight Plan;

15.1.2 ATS flight plan;

15.1.3 Appropriate NOTAM/ AIS briefing documentation;

15.1.4 Appropriate meteorological information;

15.1.5 Third Party liability Insurance Certificate

15.1.6 Forms to comply with the reporting requirements of the DGCA and the operator.

15.2 An 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.

15.3 A helicopter rotor shall not be turned under power, for the purpose of flight, without a qualified pilot at the controls. The operator shall provide appropriately specific training and procedures to be followed for all personnel, other than qualified pilots, who are likely to carry out the turning of a rotor under power for purposes other than flight.

15.4 Recommendation. The operator should issue operating instructions and provide information on helicopter climb performance with all engines operating to enable the pilot-in-command to determine the climb gradient that can be achieved during the take-off and initial climb phase for the existing take-off conditions and intended take-off technique. This information should be based

on the helicopter manufacturers or other data, acceptable to the DGCA, and should be included in the operations manual.

15.5 An operator shall ensure that when passengers or cargo are being carried, no emergency or abnormal situations shall be simulated.

15.6 **Checklists.** The checklists provided in accordance with Para 14 shall be used by flight crews 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, the flight manual or other documents associated with the certificate of airworthiness and otherwise in the operations manual. 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 Factors Training Manual (Doc 9683).

16. **Weight and Balance.** Refer CAR Section 2 Series X Part II on Weight and Balance Control and CAR Section 8 Series D Part I on Load and Trim Sheet.

17. **Journey Log Book.** Refer CAR Section 2 Series X Part VI on Journey Log Book for details.

18. **Records of Emergency and Survival Equipment.** Operators shall at all times have available for immediate communication to rescue co-ordination centres, lists containing information on the emergency and survival equipment carried on board their helicopters. 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.

19. **Flight Recorder Records.** An operator shall ensure, to the extent possible, in the event the helicopter becomes involved in an accident or incident, the preservation of all related flight recorder records and if necessary the associated flight recorders and their retention in safe custody pending their disposition as determined by DGCA.

20. **Fuel and Oil Records.**

20.1 The operator shall maintain fuel and oil records to enable DGCA to ascertain that the helicopter was equipped with sufficient fuel and oil for each flight.

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

21. **Document Storage Periods.**

21.1 An operator shall ensure that the following information/documentation is stored in an acceptable form, accessible to the DGCA, for the periods shown in the Tables below.

21.2 Information Used for the Preparation and Execution of a Flight.

Operational flight plan	6 months*
Helicopter Journey/ Technical log	24 months after the date of the last entry
Mass and balance documentation	6 months*
Notification of special loads including written information to the commander about dangerous goods	6 months*

21.3 Reports.

Flight report(s) for recording details of any occurrence or any event which the commander deems necessary to report/ record e.g. Occurrence Reports/ Flight Safety Reports etc	12 months*
Reports on exceeding of duty period and/ or reducing rest periods	18 months*

21.4 Flight Crew Records.

Flight, Duty and Rest time	15 months*
Licence	As long as the flight crew member is exercising the privileges of the licence for the operator
Conversion training and Checking	3 years
Command course (including checking)	3 years
Recurrent training and Checking	3 years
Training and checking to operate in either pilot's seat	3 years
Recent experience	3 years

Route and aerodrome competence	3 years
Training and qualification for special operations	3 years
Dangerous Goods training as appropriate	3 years

21.5 Cabin Crew Records

Flight, Duty and Rest time	18 months*
Initial training, conversion and differences training (including checking)	As long as the cabin crew member is employed by the operator
Recurrent training and refresher (including checking)	Until 12 months after the cabin crew member has left the employment of the operator*
Dangerous Goods training as appropriate	3 years

21.6 Records for Other Operations Personnel.

Training/ qualification records of other Personnel for whom an approved training programme is required.	Last 2 training records
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21.7 Other records.

Quality System records	5 years
Dangerous Goods Transport Document	6 months after completion of the flight*
Dangerous Goods Acceptance Checklist	6 months after completion of the flight*
Passenger/ Load manifests	3 months after completion of the flight*
Pre-flight medical checks	12months after completion of the flight*

* Note : The period will be as specified or till the conduct of the regulatory audit, whichever is later.

22. Helicopter Performance. Detailed information on Performance Classes 1, 2 and 3 are given as Appendix A to this CAR.

- 22.1 Helicopters with a passenger seating configuration of more than 19, or helicopters operating to or from a heliport or landing site in a congested hostile environment should be operating in Performance Class 1.
- 22.2 Helicopters with a passenger seating configuration of 19 or less but more than 9 should be operating in Performance Class 1 or 2, unless operating to or from a congested hostile environment in which case the helicopters should be operating in Performance Class 1.
- 22.3 Helicopters with a passenger seating configuration of 9 or less should be operating in Performance Class 1, 2 or 3, unless operating to or from a congested hostile environment in which case the helicopters should be operating in Performance Class 1.
- 22.4 **Exception.** HEMS operations may be undertaken in Performance Class 1 or 2 over congested hostile environment.
- 22.5 To determine the performance of the helicopter, account should be taken of at least the following factors:
- 22.5.1 Mass of the helicopter;
 - 22.5.2 Elevation or pressure altitude and temperature; and
 - 22.5.3 Wind; for take-off and landing, accountability for wind should be no more than 50% of any reported steady head wind component of 5 knots or more. Where take-off and landing with a tail wind component is permitted in the Flight Manual, not less than 150% of any reported tail wind component should be allowed. Where precise wind measuring equipment enables accurate measurement of wind velocity over the point of take-off and landing, these values may be varied.
- 22.6 **Operating Conditions.** For helicopters operating in Performance Class 2 or 3 in any flight phase where an engine failure may cause the helicopter to force-land:
- 22.6.1 a minimum visibility should be defined by the operator, taking into account the characteristics of the helicopter, but should not be less than 1000m for Performance Class 2 and 1500 m for Performance Class 3 helicopters operating under Special VFR within a control zone. The minimum visibility shall be 1000m for Performance Class 2 and 3 helicopters, when operated outside a control zone.
 - 22.6.2 the operator should verify that the surface below the intended flight path permits the pilot to execute a safe forced landing.

22.7 Performance Class 3 operations are not to be performed:

22.7.1 out of the sight of the surface; or

22.7.2 at night; or

22.7.3 when the cloud ceiling is less than 180 m (600 ft).

23. Operating Instructions – General.

23.1 General Considerations.

23.1.1 An 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.

23.1.2 The Airports Authority of India/ Aerodrome Operator shall ensure that subject to their published conditions of use, heliports and their facilities are kept continuously available for flight operations during their published hours of operations, irrespective of weather conditions.

23.2 **Sustained Over Water Flights.** All helicopters on sustained flights over water shall be certificated for ditching. Sea state shall be an integral part of ditching information.

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

23.3.1 engaged in offshore operations, or other overwater operations as prescribed by the State of the Operator; or

23.3.2 flying over water in a hostile environment at a distance from land corresponding to more than 10 minutes at normal cruise speed when operating in Performance Class 1 or 2; or

Note.— When operating in a hostile environment, a safe ditching requires a helicopter to be designed for landing on water or certificated in accordance with ditching provisions.

23.3.3 flying over water beyond auto-rotational or safe forced landing distance from land when operating in Performance Class 3.

23.4 **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.

24. Helicopter Flight Crew

24.1 **Composition of the flight crew.** The number and composition of the flight crew shall not be less than that specified in the operations manual. The flight crew 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 helicopter used, the type of operation involved and the duration of flight between points where flight crews are changed.

24.2 **Licensing.** The flight crew shall hold valid license issued or rendered valid by DGCA, authorizing operation of the type of helicopter to be used.

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

24.4 Duties of Pilot-in-command

24.4.1 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.

24.4.2 The pilot-in-command shall ensure that the checklists specified in Para 14 are complied with in detail.

24.4.3 The pilot-in-command shall be responsible for notifying the nearest DGCA and other applicable agencies, 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 as specified in CAR Section 5, Series C Part I.

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

24.4.5 The pilot-in-command shall be responsible for the journey log book.

24.5 **Flight Crew Member Emergency Duties.** An operator shall, for each type of helicopter, assign to all flight crew members the necessary functions they are to perform in an emergency including 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 helicopter.

24.6 **Flight time, flight duty periods and rest periods.** An operator shall formulate requirements to limit flight time and flight duty periods and for the provision of adequate rest periods for all its crew members. These requirements shall be in accordance with the CAR Sec 7 Series J Part II and included in the operations manual.

24.7 An operator shall maintain records of the flight time, flight duty periods and rest periods of all its crew members.

24.8 Detailed instructions on flight crew qualifications, certification and training are contained at CAR Sec 8 Series H Part II.

25. Flight Dispatcher / Operations Officer

25.1 A flight operations officer/ flight dispatcher in conjunction with a method of control and supervision of flight operations shall:

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

25.1.2 assist the pilot-in-command in preparing the operational and ATS flight plans, sign when applicable and file the ATS flight plan with the appropriate ATS unit; and

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

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

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

25.2.2 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.

26. Passengers.

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

- 26.1.1 seat belts;
 - 26.1.2 emergency exits;
 - 26.1.3 life jackets, if the carriage of life jackets is prescribed;
 - 26.1.4 oxygen dispensing equipment, if the provision of oxygen for the use of passengers is prescribed; and
 - 26.1.5 other emergency equipment provided for individual use including passenger emergency briefing cards.
- 26.2 The operator shall inform the passengers of the location and general manner of use of the principal emergency equipment carried for collective use.
- 26.3 The operator shall inform the passengers of the restrictions on the use of mobile phones and other personal electronic devices on board the helicopter.
- 26.4 In an emergency during flight, passengers shall be instructed in such emergency action as may be appropriate to the circumstances.
- 26.5 The operator shall ensure that during take-off and landing and whenever, by reason of turbulence or any emergency occurring during flight, precaution is considered necessary, all passengers on board a helicopter shall be secured in their seat by means of seat belts or harnesses provided.
- 26.6 The passengers should embark and disembark the helicopter only when engines are shut down. In exceptional circumstances e.g. for special type of operations where such feasibility does not exist, special briefing and necessary safety precautions are to be followed to avoid any incidence of the passengers fouling with the helicopter rotor system.

27. Flight Preparation.

- 27.1 A flight, or series of flights, shall not be commenced until flight preparation forms have been completed certifying that the pilot-in-command is satisfied that :
- 27.1.1 the helicopter is airworthy;
 - 27.1.2 the instruments and equipment for the particular type of operation to be undertaken, are installed and are sufficient for the flight;
 - 27.1.3 a maintenance release has been issued in respect of the helicopter;

- 27.1.4 the mass of the helicopter and centre of gravity location are such that the flight can be conducted safely, taking into account the flight conditions expected;
- 27.1.5 any load carried is properly distributed and safely secured;
- 27.1.6 a check has been completed indicating that the operating limitations can be complied with for the flight to be undertaken; and
- 27.1.7 Operational flight planning have been complied with.

Note.— 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.

- 27.1.8 Completed flight preparation forms shall be kept by an operator for a period of three months.

28. Carry on Baggage.

- 28.1 The operator shall ensure that all the baggage carried onto a helicopter and taken into the passenger cabin is adequately and securely stowed.
- 28.2 An operator shall establish procedures to ensure that only such hand baggage and cargo is carried into a helicopter and taken into the passenger cabin as can be adequately and securely stowed. These procedures must take account of the following:
 - 28.2.1 Each item carried in a cabin must be stowed only in a location that is capable of restraining it;
 - 28.2.2 Mass limitations placard as given on or adjacent to stowage areas must not be exceeded;
 - 28.2.3 Under seat stowage areas must not be used unless the seat is equipped with a restraint bar and the baggage is of such size that it may adequately be restrained by this equipment;
 - 28.2.4 Items must not be stowed in toilets or against bulkheads that are incapable of restraining articles against movement forwards, sideways or upwards and unless the bulkheads carry a placard specifying the greatest mass that may be placed there;
 - 28.2.5 Baggage and cargo placed in lockers must not be of such size that they prevent latched doors from being closed securely;
 - 28.2.6 Baggage and cargo must not be placed where it can impede access to emergency equipment; and

- 28.2.7 Checks must be made before take-off, before landing, and whenever the fasten seat belts signs are illuminated or it is otherwise so ordered to ensure that baggage is stowed where it cannot impede evacuation from the aircraft or cause injury by falling (or other movement) as may be appropriate to the phase of flight.

29. Operational Flight Planning.

- 29.1 An operator/ pilot shall complete the operational flight plan and file ATS Flight Plan with the appropriate ATS authority for every intended flight or series of flights in a method acceptable to ATC.
- 29.2 The operations manual shall describe the content and use of the operational flight plan.

30. Alternate Heliports.

30.1 Take-off Alternate Heliport.

- 30.1.1 A take-off alternate heliport shall be selected and specified in the ATS flight plan if the weather conditions at the heliport of departure are at or below the applicable heliport operating minima.
- 30.1.2 For a heliport 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 heliport operating minima for that operation.

30.2 Destination Alternate Heliport.

- 30.2.1 For a flight to be conducted in accordance with the instrument flight rules, at least one suitable alternate heliport shall be specified in the ATS flight plan, unless:
- (a) the duration of the flight and meteorological conditions prevailing are such that there is reasonable certainty that, at the estimated time of arrival at the heliport of intended landing, and for a reasonable period before and after such time, the approach and landing can be made under visual meteorological conditions as prescribed by the DGCA; or
 - (b) the heliport of intended landing is isolated and no suitable alternate is available. In such cases, a point of no return (PNR) shall be determined.

- 30.2.2 For a heliport to be selected as a destination alternate, the available information shall indicate that, at the estimated time of use, the conditions will be at or above the heliport operating minima for that operation.
- 30.2.3 For a flight departing to a destination, which is forecast to be below the heliport operating minima, two destination alternates should be selected. The first destination alternate should be at or above the heliport operating minima for destination and the second at or above the heliport operating minima for alternate.
- 30.2.4 Suitable off-shore alternates may be specified subject to the following:
- (a) the off-shore alternates shall be used only after 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 alternates;
 - (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.
- 30.2.5 Off-shore alternates should not be used when it is possible to carry enough fuel to have an on-shore alternate. Such circumstances should be exceptional and should not include payload enhancement in adverse weather conditions. Offshore alternates should not be used in a hostile environment.

31. Weather Conditions.

- 31.1 A flight to be conducted in accordance with the visual flight rules 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 render compliance with these rules possible.

Note - When a flight is conducted in accordance with VFR, the use of night vision imaging systems (NVIS) or other vision enhancing systems does not diminish the requirement to comply with the ibid provisions.

- 31.2 A flight to be conducted in accordance with instrument flight rules shall not be commenced unless information is available which indicates that conditions at the heliport of intended landing or, when an alternate is required, at least one alternate heliport will, at the time of arrival, be at or above the heliport operating minima.
- 31.3 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.
- 31.4 A flight to be planned or expected in suspected or known icing conditions shall not be commenced unless the helicopter has been inspected for icing and, if necessary, has been given appropriate de/anti-icing treatment. Accumulation of ice or other naturally occurring contaminants shall be removed so that the helicopter is kept in an airworthy condition prior to take-off.

32. Fuel and Oil Requirements.

- 32.1 **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.
- 32.2 **Visual Flight Rules (VFR) Operations.** The fuel and oil carried in order to comply with Para 32.1 shall, in the case of VFR operations, be at least the amount sufficient to allow the helicopter to:
- 32.2.1 fly to the landing site to which the flight is planned;
 - 32.2.2 have final reserve fuel to fly thereafter for a period of 20 minutes at best range speed plus 10% of the planned flight time; and
 - 32.2.3 have an additional amount of fuel, to provide for the increased consumption on the occurrence of any of the potential contingencies specified by the operator to the satisfaction of the DGCA.
- 32.3 **Instrument Flight Rules (IFR) Operations:** The fuel and oil carried in order to comply with Para 32.1 shall, in the case of IFR operations, be at least the amount to allow the helicopter:

32.3.1 When an alternate is not required, in terms of Para 30.2.1 (a), to fly to and execute an approach at the heliport or landing location to which the flight is planned, and thereafter to have:

- (a) final reserve fuel to fly 30 minutes at holding speed at 450 m (1500 ft) 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 any of the potential contingencies specified by the operator to the satisfaction of the DGCA.

32.3.2 When an alternate is required, 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
- (b) then have final reserve fuel to fly for 30 minutes at holding speed at 450 m (1500 ft) 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 any of the potential contingencies specified by the operator to the satisfaction of the DGCA.

32.4 In computing the fuel and oil required in Para 32.1 at least the following shall be considered:

- 32.4.1 meteorological conditions forecast;
- 32.4.2 expected air traffic control routings and traffic delays;
- 32.4.3 for IFR flight, one instrument approach at the destination heliport, including a missed approach;
- 32.4.4 the procedures prescribed in the operations manual for loss of pressurization, where applicable, or failure of one engine while en-route; and
- 32.4.5 any other conditions that may delay the landing of the helicopter or increase fuel and/ or oil consumption.

Note - Nothing in Para 32 precludes amendment of a flight plan in flight in order to re-plan the flight to another heliport, provided that the requirements of Para 32 can be complied with from the point where the flight has been re-planned.

- 32.5 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.

33. Oxygen Supply.

- 33.1 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:

33.1.1 all crew members and 10% of the passengers for any period in excess of 30 minutes that the pressure in the compartment occupied by them will be between 700 hpa and 620 hpa; and

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

- 33.2 A flight to be operated with a pressurized helicopter shall not be commenced unless 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 pressurization, for any period that the atmospheric pressure in any compartment occupied by them would be less than 700 hpa. In addition, when a helicopter is operated at flight altitudes at which the atmospheric pressure is more than 376 hpa, and cannot descend safely to a flight altitude at which the atmospheric pressure is equal to 620 hpa, within four minutes, there shall be no less than a 10 minute supply for the occupants of the passenger compartment.

- 33.3 Approximate altitudes in the standard atmosphere corresponding to the value of absolute pressure used in the text are as follows:

Absolute pressure	Meters	Feet
700 hPa	3000	10000
620 hPa	4000	13000
376 hPa	7600	25000

- 33.4 All flight crew members, when engaged in performing duties essential to the safe operation of a helicopter in flight shall use breathing oxygen whenever the circumstances prevail.

34 In-Flight Procedures.

34.1 Heliport Operating Minima (Flights under IFR)

- 34.1.1 A flight shall not be continued towards the heliport of intended landing, unless the latest available information indicates that at the expected time of arrival, a landing can be effected at that heliport or at least one alternate heliport, in compliance with the established operating minima.
- 34.1.2 An instrument approach shall not be continued below 300m (1000 ft) above the heliport elevation or into the final approach segment unless the reported visibility or controlling RVR is at or above the heliport operating minima.
- 34.1.3 If, after entering the final approach segment or after descending below 300m (1000ft) above the heliport 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, the helicopter shall not continue its approach to land at any heliport beyond a point at which the limits of the operating minima specified for that heliport would be infringed.

34.2 Meteorological Observations. The procedures for making meteorological observations on board helicopter in flight and for recording and reporting them as contained in AIP shall be followed.

35 Hazardous Flight Conditions.

35.1 Weather Related. Pilots may decide to abort a mission and carryout a safe precautionary landing due to deteriorating weather, keeping the safety of the helicopter and its occupants in mind. Pilots shall intimate occurrence of such landings to DGCA Air Safety Directorate as soon as possible. In case bad weather necessitating such a landing is encountered in the vicinity of an airfield, even beyond the prescribed watch hours, PIC is empowered to land at the airfield. Refer Air Safety Circular 09 of 2013.

35.2 Other Cases. 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.

36 Flight Crew Members at Duty Stations.

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

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

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

36.4 **Safety harness.** Any flight crew member occupying a pilot's seat shall keep the safety harness and shoulder straps fastened during the entire flight; all other flight crew members shall keep their safety harness 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.

37 Instrument Flight Procedures.

37.1 One or more instrument approach procedures to serve each final approach and take-off area or heliport utilized for instrument flight operations shall be approved and promulgated by the DGCA or by the State which is responsible for the heliport when located outside the territory of India.

37.2 All helicopters operated in accordance with IFR shall comply with the instrument approach procedures approved by the DGCA if the heliport is located in India, or by the State which is responsible for the heliport when located outside Indian Territory.

Note 1.— Operational procedures recommended for the guidance of operations personnel involved in instrument flight operations are described in PANS-OPS (Doc 8168), Volume I.

Note 2.— 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.

38 Special VFR Operations.

38.1 In limited visibility conditions, flights under Visual Flight Rules cannot be operated in controlled areas/ zones as the criterion of VMC visibility of 5 Km or more is not met. Special VFR flights may be authorized by ATC in such cases for a helicopter to enter a control zone for the purpose of landing, take-off and depart from a control zone, cross the control zone or operate locally within a control zone, if the visibility is not less than 1000 m for Performance Class 1 and 2 helicopters and not less than 1500 m for Performance Class 3 helicopters.

38.2 Detailed instructions on flight crew qualifications and training for undertaking Special VFR operations are contained in CAR Section 8 Series H Part II.

39 In-Flight Fuel Management.

39.1 An operator shall establish a procedure to ensure that in-flight fuel checks and fuel management are carried out.

39.2 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.

39.3 In-Flight Fuel Management.

39.3.1 **In-Flight Fuel Checks.** A commander must ensure that fuel checks are carried out at regular intervals. The remaining fuel must be recorded and evaluated to:

- (a) Compare actual consumption with planned consumption;
- (b) Check that the remaining fuel is sufficient to complete the flight; and
- (c) Determine the expected fuel remaining on arrival at the destination.

39.3.2 The relevant fuel data must be recorded in the Operational Flight Plan.

39.3.3 **In-flight fuel management.** If, as a result of an in-flight fuel check, the expected fuel remaining on arrival at the destination is less than the required alternate fuel plus final reserve fuel, the commander must:

- (a) Divert; or
- (b) Re-plan the flight unless he considers it safer to continue to the destination provided that,
- (c) At an on-shore destination, when two suitable, separate touchdown and lift-off areas are available and the weather conditions at the destination comply with those specified, the commander may permit alternate fuel to be used before landing at the destination.

39.3.4 If, as a result of an in-flight fuel check on a flight to an isolated destination heliport or landing site the expected fuel remaining at the point of last possible diversion is less than the sum of fuel to divert and final reserve fuel, a commander must:

- (a) Divert; or
- (b) Proceed to the destination provided that at on-shore destinations, two suitable, separate touchdown and lift-off areas are available at the destination and the expected weather conditions at the destination comply with those specified.

39.4 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.

39.5 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 Para 32 *ibid*.

Note 1.— The planned final reserve fuel refers to the value calculated in Para 32 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.

40 Refuelling with Passengers on Board.

- 40.1 A helicopter should not be refuelled with passengers on board unless the conditions put forth by DGCA under which such fuelling may be carried out have been complied with.
- 40.2 When the PIC considers refuelling with passengers on board to be necessary, it can be undertaken with rotors stopped provided the following requirements are met:
- 40.2.1 Door(s) on the refuelling side of the helicopter shall remain closed;
 - 40.2.2 Door(s) on the non-refuelling side of the helicopter shall remain open, weather permitting;
 - 40.2.3 Firefighting facilities of the appropriate scale shall be positioned so as to be immediately available in the event of a fire;
 - 40.2.4 Sufficient personnel shall be immediately available to move patients clear of the helicopter in the event of a fire;
 - 40.2.5 Sufficient qualified personnel should be available and be prepared for an immediate emergency evacuation;
 - 40.2.6 If the presence of fuel vapour is detected inside the helicopter, or any other hazard arises during re/defueling, fuelling must be stopped immediately.
 - 40.2.7 The ground area beneath the exits intended for emergency evacuation must be kept clear; and
 - 40.2.8 Provision is made for a safe and rapid evacuation.

Note:- Refer CAR Section 2 Series H Part II.

41 Noise Abatement.

- 41.1 An operator should ensure that take-off and landing procedures take into account the need to minimize the effect of helicopter noise.

42 Special Helicopter Operations.

42.1 Hill / Mountain Flying.

- 42.1.1 Helicopter flying in the hilly terrain requires knowledge of the typical characteristics of hilly terrain, the effects of wind and rapidly changing weather conditions etc. that can restrict the operations. Elevation of the helipads may adversely affects the performance of helicopter especially during take-off and landing phases, which also

varies from helicopter to helicopter. There are inherent hazards in hill flying, which require considerable preparation and planning, a thorough knowledge of topography.

42.1.2 Requirements.

- (a) Hill/mountain flying shall be restricted to VFR / Special VFR (within Control Zone) operations only.
- (b) All helicopter operators wishing to operate in any sector will liaise with other existing operators, including the Indian Air Force and Indian Army units regularly operating in that sector, to formulate Sector SOPs in consonance with the SOPs being followed by these other operators. These SOPs should clearly lay down the following:
 - (i) Entry/ exit procedures;
 - (ii) Routing;
 - (iii) RT/ communications procedures;
 - (iv) Details of all helipads/ landing sites in the sector including dimensions, obstructions, facilities and the contact information of the land owner etc;
 - (v) Sources for weather information;
 - (vi) Procedures to be followed in an emergency including communications failure; and
 - (vii) Any other relevant information.

42.1.3 The operator shall ensure that the pilot engaged in hill operations has a thorough knowledge of topography, general weather pattern, presence of the mountain waves and planning of entry and exit procedures.

42.1.4 Crew.

- (a) Refer CAR Section 8 Series H Part II for details on qualification, currency and recent experience for hill / mountain flying.
- (b) **One Time Operation.** Crew having previous experience in the sector and meeting all the training requirements other than

currency is permitted to undertake the task with specific approval of DGCA on a case basis.

- (c) The minimum crew for operations shall be as stated in the Operations Manual and will be dependent on the type of helicopter, the weather conditions and the type of task.

43 Offshore Operations.

43.1 Flying to offshore platforms and floating decks present its peculiar difficulties. The limited size of the heli-decks surrounded by obstacles, hot gases and varying winds and rapidly changing meteorological conditions pose a great challenge to pilots. In addition pitching, rolling and heaving experienced while landing on floating decks require a very high degree of skill and accuracy in flying. A major portion of flying operations of the helicopter industry is in offshore role. Offshore flying is undertaken in all weather conditions - by day as well as by night.

43.2 Requirements.

43.2.1 All helicopter operators wishing to operate in any offshore sector will liaise with other existing operators regularly operating in that sector, to formulate Sector SOPs in consonance with the SOPs being followed by these other operators. These SOPs should clearly lay down the following: -

- (a) Entry/ exit procedures;
- (b) Routing;
- (c) RT/ communications procedures;
- (d) Details of all helidecks/ landing platforms in the sector including dimensions, obstructions, facilities etc;
- (e) Sources for weather information;
- (f) Procedures to be followed in an emergency including communications failure; and
- (g) Any other relevant information.

43.3 The operator shall ensure that the pilot engaged in offshore operations has a thorough knowledge of the operating procedures and peculiarities concerning off shore operations.

43.4 Crew.

43.4.1 Refer CAR Section 8 Series H Part II for details on qualification, currency and recent experience for offshore flying.

43.4.2 The minimum crew for operations shall be as stated in the Operations Manual and will be dependent on the type of helicopter, the weather conditions and the type of task.

44. External Load Operations (ELO)

44.1 Terminology.

44.1.1 Helicopter External Load Operation means—

- (a) a helicopter external load towing operation; or
- (b) a helicopter sling/swing load operation.

44.1.2 Helicopter External Load Towing Operation means the towing, lowering, and laying down of external cargo by a helicopter. This includes Helicopter Banner Towing.

44.1.3 Helicopter Sling Load Operation means the external carriage, lowering, or picking up, of a load, cargo, or passengers by a helicopter by means of a bucket, net, harness, sling, or stretcher, suspended beneath the helicopter.

44.1.4 Classification Of External Load

- (a) **Class A.** An external load that cannot be moved freely, cannot be jettisoned and does not extend below the under carriage. Ski-pods, TV camera, survey equipment, crop spraying equipment attached to helicopter will come under this category.
- (b) **Class B.** An external load that can be jettisoned and is not in contact with surface (land, water etc.) e.g. a normal sling load, mining, surveys, firefighting equipment, anti-pollution pads, a container, part of wrecked car or aircraft, military stores and vehicles.
- (c) **Class C.** An external load that can be jettisoned and that remains in contact with the land or water or any other surface eg. wire pulling, cable laying, power line maintenance.

44.2 External Load Equipment.

44.2.1 Each operator performing a helicopter external load operation shall ensure the helicopter has

- (a) an electrical quick release device; and
- (b) a mechanical or independent electrical quick release device.

44.2.2 The operator shall ensure that the quick release devices functions properly with all external loads up to and including the helicopter's maximum external load.

44.2.3 The operator shall ensure that the quick release system :

- (a) has a primary control installed on one of the pilot's primary flight controls; and designed and located so that it may be operated by the pilot without limiting the pilot's ability to control the helicopter during an emergency situation; and
- (b) has a secondary control readily accessible to a crew member

44.3 Maintenance instructions for ELO equipment including hooks, slings, nets and straps etc must be established by the operator, in liaison with the manufacturer, included in the operator's helicopter maintenance programme and be approved by the DGCA.

44.4 Operating Requirements.

44.4.1 The Helicopter.

- (a) A helicopter shall meet airworthiness and certification requirements for external load equipment.
- (b) Operations shall be conducted out of ground effect.
- (c) External load operation shall be conducted under VFR or Special VFR (within Control Zone) conditions only.

44.4.2 The Crew.

- (a) Refer CAR Section 8 Series H Part II for details on qualification, currency and recent experience for ELO flying.
- (b) The minimum crew for operations shall be as stated in the Operations Manual and will be dependent on the type of helicopter, the weather conditions and the type of task.

- 44.4.3 **One Time Operation.** Crew having previous experience in ELO and meeting all the training requirements other than currency in ELO is permitted to undertake the task with specific approval of DGCA on a case basis.

45. Helicopter Hoist Operations (HHO)

45.1 Terminology.

- 45.1.1 **Helicopter Hoist Operations (HHO) Flight.** A flight by a helicopter operating under an HHO approval, the purpose of which is to facilitate the transfer of persons and/or cargo by means of a helicopter hoist.
- 45.1.2 **HHO Crew Member.** A crew member who performs assigned duties relating to the operation of a hoist.
- 45.1.3 **HHO.** A flight by a helicopter operating under a HHO approval, the purpose of which is to facilitate the transfer of persons and/ or cargo by means of a helicopter hoist.
- 45.1.4 **Hoist Cycle.** For the purpose of the setting of crew qualifications one down-and up cycle of the hoist hook shall be counted as one cycle.
- 45.1.5 **HHO Site.** A specified area at which a helicopter performs a hoist transfer.
- 45.1.6 **HHO Passenger.** A person who is to be transferred by means of a helicopter hoist.

- 45.2 An operator must ensure that the Operations Manual includes a supplement containing material specific to HHO. In particular it will address:

- 45.2.1 Performance criteria.
- 45.2.2 The weather limitations for HHO.
- 45.2.3 The criteria for determining the minimum size of the HHO site - appropriate to the task.
- 45.2.4 The procedures for determining minimum crew.
- 45.2.5 Criteria for the selection of flight crew members for the HHO task, taking previous experience into account.
- 45.2.6 The method by which crew members record hoist cycles.

45.2.7 When required, relevant extracts from the Operations Manual/ Flight Manual supplement shall be made available to the organization for which the HHO is being provided.

45.2.8 If required, the conditions under which offshore HHO transfer may be conducted including the relevant limitations on vessel movement and wind speed.

45.3 Operating Requirements.

45.3.1 Helicopter Performance.

- (a) Only Performance Class 1 operations shall be undertaken for HHO over congested terrain.
- (b) Performance Class 2 or 3 operations may be undertaken for HHO over non-congested terrain.

45.3.2 The Helicopter.

- (a) During HHO, the helicopter must be capable of sustaining a critical power unit failure with the remaining engine(s) at the appropriate power setting, without hazard to the suspended person(s)/cargo, third parties, or property. (Except for HEMS HHO at a HEMS operating site where the requirement need not be applied.)
- (b) A helicopter shall meet airworthiness and certification requirements for helicopter hoist equipment.
- (c) Conduct of operations shall be limited to performance specified in OGE (out of ground effect) Performance Graph given in the Flight Manual.

45.3.3 HHO shall be conducted under VFR or Special VFR (within Control Zone) conditions only.

45.4 The Crew.

45.4.1 **Crew Composition.** The minimum crew for operations shall be as stated in the Operations Manual and will be dependent on the type of helicopter, the weather conditions, the type of task, and, in addition for offshore operations, the HHO site environment, the sea state and the movement of the vessel but, in no case will be less than one pilot and one HHO crew member.

45.4.2 Refer CAR Section 8 Series H Part II for details on qualification, currency and recent experience for HHO flying.

45.4.3 **One Time Operation.** Crew having previous experience in HHO and meeting all the training requirements other than currency in HHO is permitted to undertake the task with specific approval of DGCA on a case basis.

45.5 **HHO Equipment.** The installation of all helicopter hoist equipment including any subsequent modifications and where appropriate, its operation, shall have an airworthiness approval appropriate to the intended function. Ancillary equipment must be designed and tested to the appropriate standard and acceptable to the DGCA.

45.6 **Equipment Check.** Serviceability of the hoist equipment and the hoist cable must be ensured by carrying out one hoist cycle before undertaking the actual operation.

46. **Helicopter Emergency Medical Services (HEMS)** The evacuation involving HEMS may be needed not only from regular helipads/ heliports but also from unprepared areas/ landing sites if the situation so arises. Whilst the need for timely and efficient evacuation cannot be overstated, the primacy of safe operations is to be appreciated even more. Thus HEMS operations need to be distinguished from Medevac operations and be considered as a special helicopter operation.

46.1 **Restrictions.**

46.1.1 Helicopters shall only be operated for the purpose of HEMS operations if the operator has been approved by the DGCA. The HEMS operations must be conducted in accordance with the approved category of operations. An operator must ensure that the Operations Manual includes a supplement specifying operational considerations specific to HEMS operations. Relevant extracts from the Operations Manual shall be made available to the organization for which the HEMS is being provided.

46.1.2 Helicopters undertaking HEMS operations are permitted to land at unprepared landing sites only for the purposes of taking casualties on board for onward evacuation.

46.2 **Crew**

46.2.1 The Operations Manual shall contain specific criteria for the selection of flight crew members for the HEMS task, taking previous experience into account. All HEMS crew members should have successfully completed training in accordance with

46.2.2 The minimum experience for commanders conducting HEMS flights shall not be less than:

- (a) 2000 hours on helicopters of which 500 hours is as pilot-in command on type;
- (b) 50 hours of similar operating experience.

46.2.3 **Recency.** All pilots conducting HEMS operations shall, in addition to the currency requirements for flying commensurate with their experience, have completed a minimum of 30 minutes flight by sole reference to instruments in a helicopter or in a FSTD within the last 6 months. In case the currency has lapsed, the pilot will need to carry out 30 minutes of instrument flying on the helicopter / simulator with a TRI / TRE.

46.2.4 **Crew Composition**

- (a) **Day Flight.** The minimum crew by day shall be one pilot and one medical attendant / paramedic / HEMS crew member.
- (b) **Night Flight.** The minimum crew by night shall be two pilots and medical attendant / paramedic / HEMS crew member.

46.3 **Helicopter Configuration.**

46.3.1 The helicopter internal configuration should be suitable for HEMS operations and provide necessary space for approved stretchers and medical equipment.

46.3.2 **Helicopter Medical Equipment.** The installation of all helicopter dedicated medical equipment and, where appropriate, its operation including any subsequent modifications shall be approved.

46.3.3 An operator shall ensure that procedures are established for the use of portable equipment on board.

46.3.4 **Communication and Navigation Equipment.** Helicopters conducting HEMS flights shall be provided with communications equipment capable of conducting two-way communication with the organization for which the HEMS is being provided and, where possible, to communicate with ground emergency service personnel.

46.4 **HEMS Operating Base Facilities.**

- 46.4.1 If crewmembers are required to be on standby with a reaction time of less than 45 minutes, dedicated suitable accommodation shall be provided close to each operating base.
- 46.4.2 At each operating base the pilots shall be provided with facilities for obtaining current and forecast weather information and shall be provided with satisfactory communications with the appropriate ATS unit. Satisfactory facilities shall be available for the planning of all tasks.

46.5 Briefing.

- 46.5.1 **Medical passengers.** Prior to any HEMS flight, or series of flights, medical passengers shall be briefed on the following:
 - (a) Familiarization with the helicopter type(s) operated;
 - (b) Entry and exit under normal and emergency conditions both for self and patients;
 - (c) Use of the relevant onboard specialist medical equipment;
 - (d) The need for the commander's approval prior to use of specialized equipment;
 - (e) Method of supervision of other medical staff;
 - (f) The use of helicopter intercommunication systems; and
 - (g) Location and use of onboard fire extinguishers.
- 46.5.2 **Ground Emergency Service Personnel.** An operator shall take all reasonable measures to ensure that ground emergency service personnel are familiar with the following:
 - (a) Two way radio communication procedures with helicopters;
 - (b) The selection of suitable HEMS operating sites for HEMS flights;
 - (c) The physical danger areas of helicopters;
 - (d) Crowd control in respect of helicopter operations; and
 - (e) The evacuation of helicopter occupants following an on-site helicopter accident.

47. Surveillance Inspection of VFR and Seasonal Helipads. Refer Op Circular 01/2014 for checklist for Surveillance Inspection of VFR and Seasonal Helipads.

48. VFR and Special VFR.

48.1 VFR Minima.

48.1.1 An operator shall ensure that VFR flights are conducted in accordance with the Visual Flight Rules and in accordance with the following minimum visibilities:

Altitude Band	Airspace Class	Flight Visibility	Distance from Cloud
At or above 3050 m (10000 ft) AMSL	A B C D E F G	8 km	1500 m horizontally 300 m (1000 ft) vertically
Below 3050 m (10000 ft) and above 900 m (3000 ft) AMSL, or above 300 m (1000 ft) above terrain, whichever is the higher	A B C D E F G	5 km	1500 m horizontally 300 m (1000 ft) vertically
At or below 900 m (3000 ft) AMSL, or 300 m (1000 ft) above terrain, whichever is the higher	A B C D E	5 km	1500 m horizontally 300 m (1000 ft) vertically
	F G	5 km*	Clear of clouds and with the surface in sight

Note 1: When the height of the transition altitude is lower than 3 050 m (10000 ft) AMSL, FL 100 should be used in lieu of 10000 ft.

*Note 2 : In Class F and G airspace HELICOPTERS may be permitted to operate upto 1000 m flight visibility, if manoeuvred at a speed that will give adequate opportunity to observe other traffic or any obstacles in time to avoid collision.

48.1.2 Low level overwater flights out of sight of land are only to be conducted under VFR when the cloud ceiling is greater than 600 ft by day. However, for helicopters operating in Performance Class 1 and 2, minimum visibility by day may be 1000 m.

48.1.3 In class G airspace, when flying between helidecks where the overwater sector is less than 10 nm, VFR flights are conducted in accordance with the following:

48.2 Authorisation of Special VFR Flights.

- 48.2.1 When the ground visibility is not less than 1000/ 1500 metres depending on Performance Class of the helicopter, ATC may authorise Special VFR flights provided:
- 48.2.2 The helicopter is fitted with the minimum instruments stipulated in Para 48.5 of this CAR.
- 48.2.3 In case of Performance Class I and II helicopters, ATC may authorise Special VFR flights when the ground visibility is not less than 1000m.
- 48.2.4 For Performance Class III helicopters, ATC may authorise Special VFR flights when the ground visibility is not less than 1500m.
- 48.3 Both, operator and the Pilot-in-Command, shall be responsible for ensuring the compliance of the requirements of helicopter and pilot qualification for Special VFR operations stipulated in this CAR. When operating in a multi crew environment only the PIC needs to be qualified to undertake Special VFR operations.
- 48.4 ATC has discretion to ask Pilot-in-Command to confirm the compliance of the requirements of this CAR before authorising Special VFR flight.
- 48.5 **Requirement of minimum instruments for Special VFR operations on Helicopters not certified for IFR Operations.** In addition to the instruments to be fitted for flight under VFR, the helicopter shall be fitted with the following instruments:
- 48.5.1 Artificial horizon
- 48.5.2 Heading Indicator (Direction Gyro)
- 48.5.3 Rate of Climb Indicator
- 48.5.4 VOR or ADF or GPS

Note1: Helicopter should not be used for Special VFR flights with any of above equipment unserviceable.

Note 2: It is recommended to use electrical Artificial Horizon and Heading Indicator.

48.6 Training and Qualifications. Refer CAR Section 8 Series H Part II.

49. Heliport Operating Minima

49.1 General

- 49.1.1 An operator shall establish, for each heliport planned to be used, heliport operating minima that are not lower than the values given below. The method of determination of such minima must be acceptable to the DGCA.

Note: The above paragraph does not prohibit in-flight calculation of minima for a non-planned alternate heliport if carried out in accordance with an accepted method.

- 49.1.2 In establishing the heliport operating minima which will apply to any particular operation, an operator must take full account of:

- (a) The type, performance and handling characteristics of the helicopter;
- (b) The composition of the flight crew, their competence and experience;
- (c) The dimensions and characteristics of the FATOs/ runways which may be selected for use;
- (d) The adequacy and performance of the available visual and non-visual ground aids;
- (e) The equipment available on the helicopter for the purpose of navigation and/or control of the flight path, as appropriate, during the take-off, the approach, the flare, the hover, the landing, roll-out and the missed approach;
- (f) The obstacles in the approach, missed approach and the climb-out areas required for the execution of contingency procedures and necessary clearance;
- (g) The obstacle clearance altitude/height for the instrument approach procedures; and
- (h) The means to determine and report meteorological conditions.

49.2 Take-Off Minima

49.2.1 General

- (a) Take-off minima established by the operator must be expressed as visibility or RVR limits, taking into account all relevant factors for each heliport planned to be used and the helicopter characteristics. Where there is a specific need to

see and avoid obstacles on departure and/or for a forced landing, additional conditions (e.g. ceiling) must be specified.

- (b) The PIC shall not commence take-off unless the weather conditions at the heliport of departure are equal to or better than applicable minima for landing at that heliport unless a suitable take-off alternate heliport is available.
- (c) When the reported meteorological visibility is below that required for take-off and RVR is not reported, a take-off may only be commenced if the PIC can determine that the RVR/Visibility along the take-off FATO/runway is equal to or better than the required minimum.
- (d) When no reported meteorological visibility or RVR is available, a take-off may only be commenced if the PIC can determine that the RVR/Visibility along the take-off FATO/runway is equal to or better than the required minimum.

49.2.2 Visual reference

- (a) The take-off minima must be selected to ensure sufficient guidance to control the helicopter in the event of both a discontinued take-off in adverse circumstances and a continued take-off after failure of the critical power unit.
- (b) For night operations ground lighting must be available to illuminate the FATO/ runway and any obstacles unless otherwise agreed by the DGCA.

49.2.3 Required RVR / Visibility

- (a) For Performance Class 1 operations, an operator must establish an RVR and visibility respectively (RVR / Vis) as take-off minima in accordance with the following table:

RVR/ Visibility for Take-Off

Onshore heliports with IFR Departure Procedures	RVR/Visibility
No lighting and no markings (Day)	1000 m or the rejected take-off distance, whichever is greater
No markings (Night)	1000 m
Runway edge/FATO lighting and centre line marking	1000 m

Runway edge/FATO lighting, centre line marking and RVR information	1000 m
Offshore Helideck	RVR/Visibility
Two pilot operations	1000 m

Note : The PIC must establish that the take-off flight path is free of obstacles.

- (b) For Performance Class 2 operations onshore, the PIC must operate to take-off minima of 1000 m RVR / Vis and remain clear of cloud during the take-off manoeuvre until reaching Performance Class 1 capabilities.
- (c) For Performance Class 2 operations offshore, the PIC must operate to minima not less than that for Class 1 and remain clear of cloud during the take-off manoeuvre until reaching Performance Class 1 capabilities.
- (d) The table below, for converting reported meteorological visibility to RVR, must not be used for calculating take-off minima.

49.3 Non-Precision Approach

- 49.3.1 **System Minima.** An operator must ensure that system minima for non-precision approach procedures, which are based upon the use of ILS without glide path (Localiser only), VOR, NDB, Surveillance Radar Approach (SRA) and VHF Direction Finding (VDF) are not lower than the MDH values given in Table below.

System Minima for Non-Precision Approach Aids

Facility	Lowest MDH
ILS (no glide path – Localiser only)	250 ft
SRA (terminating at ½ nm)	250 ft
SRA (terminating at 1 nm)	300 ft
SRA (terminating at 2 nm)	350 ft
VOR	300 ft
VOR/ DME	250 ft
NDB	350 ft
NDB/ DME	300 ft
VDF(QDM & QCH)	350 ft

- 49.3.2 **Minimum Descent Height.** An operator must ensure that the minimum descent height for a non-precision approach is not lower than either:

- (a) The OCH/ OCL for the category of helicopter; or
- (b) The system minimum.

49.3.3 **Visual Reference.** A pilot may not continue an approach below MDA/ MDH unless at least one of the following visual references for the intended FATO/ runway is distinctly visible and identifiable to the pilot:

- (a) Elements of the approach light system;
- (b) The threshold;
- (c) The threshold markings;
- (d) The threshold lights;
- (e) The threshold identification lights;
- (f) The visual glide slope indicator;
- (g) The touchdown zone or touchdown zone markings;
- (h) The touchdown zone lights;
- (i) FATO/Runway edge lights; or
- (j) Other visual references accepted by the DGCA.

49.3.4 **Required RVR.**

- (a) For non-precision approaches by helicopters operated in Performance Class 1 or 2, the minima given in the following Table shall apply:

Non-Precision Approach Minima

MDH (ft)	Facilities/ RVR			
	Full	Intermediate	Basic	Nil
250-299 ft	600 m	800 m	1000 m	1000 m
300-449 ft	800 m	1000 m	1000 m	1000 m
450 ft & above	1000 m	1000 m	1000 m	1000 m

Note 1: Full facilities comprise FATO/runway markings, 720 m or more of HI/MI approach lights, FATO/runway edge lights, threshold lights and FATO/runway end lights. Lights must be on.

Note 2: Intermediate facilities comprise FATO/runway markings, 420 - 719 m of HI/MI approach lights, FATO/runway edge lights, threshold lights and FATO/runway end lights. Lights must be on.

Note 3: Basic facilities comprise FATO/ runway markings, <420 m HI/ MI approach lights, any length of LI approach lights, FATO/runway edge lights, threshold lights and FATO/ runway end lights. Lights must be on.

Note 4: Nil approach light facilities comprise FATO/runway markings, FATO/ runway edge lights, threshold lights, FATO/ runway end lights or no lights at all.

Note 5: The tables are only applicable to conventional approaches with a nominal descent slope of not greater than 4°. Greater descent slopes will usually require that visual glide slope guidance (e.g. PAPI) is also visible at the Minimum Descent Height.

Note 6: The above figures are either reported RVR or meteorological visibility converted to RVR.

Note 7: The MDH mentioned in Table refers to the initial calculation of MDH. When selecting the associated RVR, there is no need to take account of a rounding up to the nearest ten feet, which may be done for operational purposes, (e.g. conversion to MDA).

- (b) Where the missed approach point is within ½ nm of the landing threshold, the approach minima given for full facilities may be used regardless of the length of approach lighting available. However, FATO/ runway edge lights, threshold lights, end lights and FATO/ runway markings are still required.
- (c) Night operations. For night operations ground lighting must be available to illuminate the FATO/ runway and any obstacles unless otherwise agreed by the DGCA.

49.4 Precision Approach - Category I Operations

49.4.1 **General.** A Category I operation is a precision instrument approach and landing using ILS, MLS or PAR with a decision height not lower than 200 ft and with a runway visual range not less than 500 m.

49.4.2 **Decision Height.** An operator must ensure that the decision height to be used for a Category I precision approach is not lower than:

- (a) The minimum decision height specified in the Rotorcraft Flight Manual (RFM) if stated;
- (b) The minimum height to which the precision approach aid can be used without the required visual reference;
- (c) The OCH/ OCL for the category of helicopter; or
- (d) 200 ft.

49.4.3 **Visual Reference.** A pilot may not continue an approach below the Category I decision height, determined in accordance with Para 49.4.2 above, unless at least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:

- (a) Elements of the approach light system;
- (b) The threshold;
- (c) The threshold markings;
- (d) The threshold lights;
- (e) The threshold identification lights;
- (f) The visual glide slope indicator;
- (g) The touchdown zone or touchdown zone markings;
- (h) The touchdown zone lights; or
- (i) FATO/ runway edge lights.

49.4.4 **Required RVR.**

- (a) For Category I operations by helicopters the following minima shall apply:

Precision Approach Minima - Category I ILS Approach

DH (ft)	Facilities/ RVR			
	Full	Intermediate	Basic	Nil
200 ft	500 m	600 m	700 m	1000 m
201-250 ft	550 m	650 m	750 m	1000 m
251 -300 ft	600 m	700 m	800 m	1000 m

301 ft & above	750 m	800 m	900 m	1000 m
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Note 1: Full facilities comprise FATO/ runway markings, 720 m or more of HI/ MI approach lights, FATO/ runway edge lights, threshold lights and FATO/ runway end lights. Lights must be on.

Note 2: Intermediate facilities comprise FATO/ runway markings, 420 - 719 m of HI/MI approach lights, FATO/ runway edge lights, threshold lights and FATO/ runway end lights. Lights must be on.

Note 3: Basic facilities comprise FATO/runway markings, <420 m of HI/ MI approach lights, any length of LI approach lights, FATO/ runway edge lights, threshold lights and FATO/ runway end lights. Lights must be on.

Note 4: Nil approach light facilities comprise FATO/ runway markings, FATO/ runway edge lights, threshold lights, FATO/ runway end lights or no lights at all.

Note 5: The above figures are either the reported RVR or meteorological visibility converted to RVR.

Note 6: The Table is applicable to conventional approaches with a glide slope angle up to and including 4°.

Note 7: The DH mentioned in the Table 4 refers to the initial calculation of DH. When selecting the associated RVR, there is no need to take account of a rounding up to the nearest ten feet, which may be done for operational purposes, (e.g. conversion to DA).

- 49.4.5 **Night Operations.** For night operations ground lighting must be available to illuminate the FATO / runway and any obstacles unless otherwise agreed by the DGCA.

49.5 Circling Approach

- 49.5.1 Circling is the term used to describe the visual phase of an instrument approach, to bring an aircraft into position for landing on a FATO / runway which is not suitably located for a straight in approach.

- 49.5.2 For a circling approach the specified MDH shall not be less than 250 ft, and the meteorological visibility shall not be less than 1000 m.

Note: Visual manoeuvring (circling) with prescribed tracks is an accepted procedure within the meaning of this paragraph.

49.6 Visual Approach

- 49.6.1 An operator shall not use an RVR of less than 1000 m for a visual approach.
- 49.6.2 **Conversion of Reported Meteorological Visibility to RVR.** An operator must ensure that a meteorological visibility to RVR conversion is not used for calculating take-off minima or Category II minima or when a reported RVR is available.
- 49.6.3 When converting meteorological visibility to RVR in all other circumstances than those in Para 49.6.2 above, an operator must ensure that the following Table is used:

Conversion of Visibility to RVR

Lighting elements in operation	RVR = Met Visibility multiplied by	
	Day	Night
Hi approach and runway lighting	1·5	2·0
Any type of lighting	1·0	1·5
No lighting	1·0	Not applicable

- 49.7 For Category II or Category III operations and for LVTO the operator shall approach DGCA for approvals on a need basis, and approval shall be granted by DGCA on a case to case basis.

50. Helicopter Instruments, Equipment and Flight Documents

50.1 General

- 50.1.1. 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 helicopter according to the helicopter used and to the circumstances under which the flight is to be conducted. The prescribed instruments and equipment, including their installation, shall be approved or accepted by the DGCA.
- 50.1.2. A helicopter shall carry a certified true copy of the air operator Permit/ certificate, with operations specifications relevant to the helicopter type, issued in conjunction with the certificate.
- 50.1.3 The operator shall include in the operations manual a minimum equipment list (MEL), approved by 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. When the helicopter is

not registered in India, the operator shall ensure that the MEL does not affect the helicopter's compliance with the airworthiness requirements applicable by DGCA

Note – MEL requirements are contained in CAR Section 2, Series 'B' Part I.

50.1.4 The operator shall make available to operations staff and crew members 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. The manual shall be easily accessible to the flight crew during all flight operations.

50.2 All helicopters on all flights

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

50.2.2 Helicopters shall be equipped with

- (a) Accessible first aid kit as per CAR Section 2, Series 'X' Part III.
- (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:
 - (i) the pilot's compartment; and
 - (ii) each passenger compartment that is separate from the pilot's compartment and that is not readily accessible to the flight crew.
- (c)
 - (i) a seat or berth for each person over two years of age.
 - (ii) a seat belt for each seat and restraining belts for each berth.
 - (iii) 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.

- (d) means of ensuring that the following information and instructions are conveyed to passengers:
 - (i) when seat belts or harnesses are to be fastened;
 - (ii) when and how oxygen equipment is to be used if the carriage of oxygen is required;
 - (iii) restrictions on smoking;
 - (iv) location and use of life jackets or equivalent individual flotation devices where their carriage is required; and
 - (v) location and method of opening emergency exits; and
- (e) if fuses are used, spare electrical fuses of appropriate ratings for replacement of those accessible in flight.

50.2.3 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 a helicopter 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 the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer as it appears in the Eighth Edition of the Handbook for the Montreal Protocol on Substances that Deplete the Ozone Layer, Annex A, Group II.

50.2.4 A helicopter shall carry:

- (a) the operations manual as prescribed in ICAO Annex 6 Part III Para 2.2.2, or those parts of it that pertain to flight operations;
- (b) the helicopter flight manual for the helicopter, or other documents containing performance data and any other information necessary for the operation of the helicopter within the terms of its certificate of airworthiness, unless these data are available in the operations manual; and

- (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.

50.2.5 Marking of break-in points.

- (a) 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 per ICAO Annex 6 Part III Para 4.2.4.1. The colour of the markings shall be red or yellow, and if necessary they shall be outlined in white to contrast with the background.
- (b) If the corner markings are more than 2 m apart, intermediate lines 9 cm × 3 cm shall be inserted so that there is no more than 2 m between adjacent markings.

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

50.3 Flight Recorders.

Note 1.— Crash protected flight recorders comprise one or more of the following systems: a flight data recorder (FDR), a cockpit voice recorder (CVR), an airborne image recorder (AIR) and/or a data link recorder (DLR). Image and data link information may be recorded on either the CVR or the FDR.

Note 2.— Combination recorders (FDR/CVR) may be used to meet the flight recorder equipage requirements in ICAO Annex 6.

Note 3.— Detailed guidance on flight recorders is contained in ICAO Annex 6 Appendix 4.

Note 4.— Lightweight flight recorders comprise one or more of the following systems: an aircraft data recording system (ADRS), a cockpit audio recording system (CARS), an airborne image recording system (AIRS) and/or a data link recording system (DLRS). Image and data link information may be recorded on either the CARS or the ADRS.

Note 5.— For helicopters for which the application for type certification is submitted before 1 January 2016, specifications applicable to flight recorders may be found in EUROCAE ED-112, ED-56A, ED-55, Minimum Operational Performance Specifications (MOPS), or earlier equivalent documents.

Note 6.— For helicopters for which the application for type certification is submitted on or after 1 January 2016, specifications applicable to flight recorders may be found in EUROCAE ED-112A, Minimum Operational Performance Specification (MOPS), or equivalent documents.

50.3.1 Flight data recorders and aircraft data recording systems.

Note 1.— Parameters to be recorded are listed in Table A4-1 of Appendix 4 Annex 6.

Note 2.— ADRS performance requirements are as contained in the EUROCAE ED-155, Minimum Operational Performance Specification (MOPS) for Lightweight Flight Recorder Systems, or equivalent documents.

50.3.2 Types.

- (a) A Type IV FDR shall record the parameters required to determine accurately the helicopter flight path, speed, attitude, engine power and operation.
- (b) A Type IVA FDR shall record the parameters required to determine accurately the helicopter flight path, speed, attitude, engine power, operation and configuration.
- (c) A Type V FDR shall record the parameters required to determine accurately the helicopter flight path, speed, attitude and engine power.

50.3.3 Operation.

- (a) All helicopters of a maximum certificated take-off mass of over 3180 kg for which the individual certificate of airworthiness is first issued on or after 1 January 2016 shall be equipped with a Type IVA FDR.
- (b) All helicopters of a maximum certificated take-off mass of over 7000 kg, or having a passenger seating configuration of more than nineteen, for which the individual certificate of airworthiness is first issued on or after 1 January 1989 shall be equipped with a Type IV FDR.
- (c) All turbine-engine helicopters of a maximum certificated take-off mass of over 2250 kg, up to and including 3180 kg for which the application for type certification was submitted on or after 1 January 2018 shall be equipped with:
 - (i) a Type IV A FDR; or
 - (ii) Class C AIR capable of recording flight path and speed parameters displayed to the pilot(s); or
 - (iii) an ADRS capable of recording the essential parameters defined in ICAO Annex 6 Appendix 4 Table A4-3.

50.3.4 Discontinuation.

- (a) The use of engraving metal foil FDRs shall be discontinued.
- (b) The use of photographic film FDRs shall be discontinued.
- (c) The use of analogue FDRs using frequency modulation (FM) shall be discontinued by 1 January 2012.
- (d) The use of magnetic tape FDRs shall be discontinued by 1 January 2016.

50.3.5 Duration. Types IV, IVA and V FDRs shall be capable of retaining the information recorded during at least the last ten hours of their operation.

50.4 Cockpit Voice Recorders.

50.4.1 Operation

- (a) All helicopters of a maximum certificated take-off mass of over 7000 kg for which the individual certificate of airworthiness is first issued on or after 1 January 1987 shall be equipped with a CVR. For helicopters not equipped with an FDR, at least main rotor speed shall be recorded on the CVR.
- (b) All helicopters of a maximum certificated take-off mass of over 7000 kg for which the individual certificate of airworthiness was first issued before 1 January 1987 shall be equipped with a CVR. For helicopters not equipped with an FDR, at least main rotor speed shall be recorded on the CVR.

50.4.2 Discontinuation

- (a) The use of magnetic tape and wire CVRs shall be discontinued by 1 January 2016.
- (b) Duration
 - (i) A CVR shall be capable of retaining the information recorded during at least the last 30 minutes of its operation.
 - (ii) From 1 January 2016, all helicopters required to be equipped with a CVR shall be equipped with a CVR

capable of retaining the information recorded during the last two hours of its operation.

50.4.3 Data link recorders

(a) Applicability

- (i) All helicopters for which the individual certificate of airworthiness is first issued on or after 1 January 2016, which utilize any of the data link communications applications listed in ICAO Annex 6 Appendix 4 Para 5.1.2 and are required to carry a CVR, shall record on a flight recorder the data link communications messages.
- (ii) All helicopters which are modified on or after 1 January 2016 to install and utilize any of the data link communications applications listed in 5.1.2 of Appendix 4 Annex 6 and are required to carry a CVR shall record on a flight recorder the data link communications messages.

50.4.4 **Duration.** The minimum recording duration shall be equal to the duration of the CVR.

50.4.5 **Correlation.** Data link recording shall be able to be correlated to the recorded cockpit audio.

50.4.6 Flight Recorders — General.

- (a) **Construction and Installation.** Flight recorders shall be constructed, located and installed so as to provide maximum practical protection for the recordings in order that the recorded information may be preserved, recovered and transcribed. Flight recorders shall meet the prescribed crashworthiness and fire protection specifications.
- (b) **Operation.**
 - (i) Flight recorders shall not be switched off during flight time.
 - (ii) 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 ICAO Annex 13.

- (c) **Continued Serviceability.** Operational checks and evaluations of recordings from the flight recorder systems shall be conducted to ensure the continued serviceability of the recorders.

- (d) **Flight Recorders Electronic Documentation.**

Note.— Industry specification for documentation concerning flight recorder parameters may be found in the ARINC 647A, Flight Recorder Electronic Documentation, or equivalent document.

50.5 Instruments and Equipment for Flights Operated under VFR and IFR — by Day and Night

Note.— The flight instruments requirements may be met by combinations of instruments or by electronic displays.

- 50.5.1 All helicopters when operating in accordance with VFR by day shall be equipped with:

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

- 50.5.2 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 equipped with:

- (a) a magnetic compass;
- (b) an accurate timepiece indicating the time in hours, minutes and seconds;
- (c) two sensitive pressure altimeters;
- (d) an airspeed indicating system with means of preventing malfunctioning due to either condensation or icing;

- (e) a slip indicator;
- (f) an attitude indicator (artificial horizon) for each required pilot and one additional attitude indicator;
- (g) a heading indicator (directional gyroscope);
- (h) a means of indicating whether the power supply to the gyroscope 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;
- (k) a stabilization system, unless it has been demonstrated to the satisfaction of the certificating authority that the helicopter possesses, by nature of its design, adequate stability without such a system;
- (l) such additional instruments or equipment as may be prescribed by the DGCA; and if operated at night, the following lights shall be carried:
 - (i) the lights required by CAR, Section 9 Series C Part-I for aircraft in flight or operating on the movement area of a heliport;
 - (ii) landing light;
 - (iii) illumination for all instruments and equipment that are essential for the safe operation of the helicopter that are used by the flight crew;
 - (iv) lights in all passenger compartments; and
 - (v) a flashlight for each crew member station.
 - (vi) One of the landing lights shall be trainable, at least in the vertical plane for all the helicopters.

50.5.3 All helicopters when operating in accordance with IFR 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 the

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.

50.6 All Helicopters on Flights over Water

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

- (a) engaged in offshore operations, or other overwater operations as prescribed by the DGCA; or
- (b) flying over water in a hostile environment at a distance from land corresponding to more than 10 minutes at normal cruise speed when operating in Performance Class 1 or 2; or

Note.— When operating in a hostile environment, a safe ditching requires a helicopter to be designed for landing on water or certificated in accordance with ditching provisions.

- (c) flying over water in a non-hostile environment at a distance from land specified by DGCA when operating in Performance Class 1; or
- (d) flying over water beyond auto-rotational or safe forced landing distance from land when operating in Performance Class 3.

Note.— When considering the distance beyond which flotation equipment is required, the DGCA takes into consideration the certification standard of the helicopter.

50.6.2 Emergency Equipment

- (a) Helicopters operating in Performance Class 1 or 2 and operating in accordance with the provisions of Para 50.6.1 above, shall be equipped with:
 - (i) 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 the person for whose use it is provided. For offshore operations the life jacket shall be worn constantly unless the occupant is wearing an integrated survival suit that includes the functionality of the life jacket;

- (ii) 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

Note.— The overload state is a design safety margin of 1.5 times the maximum capacity.

- (iii) equipment for making the pyrotechnical distress signals described in ICAO Annex 2.
- (b) Helicopters operating in Performance Class 3 when operating beyond auto-rotational distance from land shall be equipped with 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 the person for whose use it is provided.
- (c) In the case of helicopters operating in Performance Class 2 or 3, 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 Para 51.6.2 (a) (i) shall be carried.
- (d) Each life jacket and equivalent individual flotation device, when carried in accordance with Para 51.6, shall be equipped with a means of electric illumination for the purpose of facilitating the location of persons.

51.6.3 All Helicopters on Flights over Designated Sea Areas

- (a) Helicopters, when operating over sea areas which have been designated by AAI as areas in which search and rescue would be especially difficult, shall be equipped with life-saving equipment (including means of sustaining life) as may be appropriate to the area overflown.

Note.— When establishing rescue time, the sea state and the ambient light conditions should be taken into consideration.

51.7 All helicopters on Flights over Designated Land Areas. Helicopters, when operated across land areas, which may be designated by AAI as areas in which search and rescue 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 helicopter power supply and capable of

being operated away from the helicopter by unskilled persons. Helicopter shall also be equipped with such signalling devices and life-saving equipment (including means of sustaining life), as may be appropriate to the area over flown.

51.8 Emergency locator transmitter (ELT)

- 51.8.1 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 Para 51.6.1 (a), with at least one automatic ELT and one ELT(S) in a raft or life jacket.
- 51.8.2 All helicopters operating in Performance Class 3 shall be equipped with at least one automatic ELT and, when operating on flights over water as described in 51.6.1 (b), with at least one automatic ELT and one ELT(S) in a raft or life jacket.
- 51.8.3 ELT equipment carried to satisfy the requirements of Para 51.8.1 and 51.8.2 shall operate in accordance with the relevant provisions of Annex 10, Volume III.

51.9 All Helicopters on High Altitude Flights

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

- 51.9.1 A helicopter intended to be operated at flight altitudes at which the atmospheric pressure is less than 700 hPa in personnel compartments shall be equipped with oxygen storage and dispensing apparatus capable of storing and dispensing the oxygen supplies required.
- 51.9.2 A helicopter 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.
- 51.9.3 A helicopter intended to be operated at flight altitudes at which the atmospheric pressure is more than 376 hPa which 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 issued on or after 9 November 1998, shall be provided with automatically deployable oxygen equipment to satisfy the requirements. The total number of oxygen dispensing units shall exceed the number of passenger and cabin crew seats by at least 10 per cent.

51.10 All Helicopters in Icing Conditions

- 51.10.1 An operator shall not operate a helicopter in expected or actual icing conditions unless it is certificated and equipped to operate in icing conditions.
- 51.10.2 All helicopters 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.
- 51.10.3 An operator shall not operate a helicopter in expected or actual icing conditions at night unless it is equipped with a means to illuminate or detect the formation of ice. Any illumination that is used must be of a type that will not cause glare or reflection that would handicap crew members in the performance of their duties.

51.11 Helicopters when carrying Passengers — Significant-Weather Detection. An operator shall not operate a helicopter with a maximum approved passenger seating configuration (MAPSC) of more than 9 under IFR or at night when current weather reports indicate that thunderstorms or other potentially hazardous weather conditions, regarded as detectable with airborne weather radar, may reasonably be expected along the route to be flown unless it is equipped with airborne weather radar equipment.

51.12 All helicopters required to comply with the Noise Certification Standards. All helicopters required to comply with the noise certification Standards of Annex 16, Volume I, shall carry a noise certificate as required vide Para 2.2 of CAR Section 2, Series F Part-III.

51.13 Helicopters carrying Passengers — Cabin Crew Seats. All helicopters shall be equipped with a forward or rearward facing (within 15 degrees of the longitudinal axis of the helicopter) seat, fitted with a safety harness for the use of each cabin crew member required to satisfy the intent of ICAO Annex 6 Part III Para 10.1 in respect of emergency evacuation.

Note 1.— In accordance with the provisions of Para 51.2.2 (c) (i), a seat and seat belt shall be provided for the use of each additional cabin crew member.

Note 2.— Safety harness includes shoulder straps and a seat belt which may be used independently.

- 51.14 **Helicopters required to be Equipped with a Pressure-Altitude Reporting Transponder.** Helicopters shall be fitted with Pressure Altitude Reporting Transponder in accordance with CAR Section 2 Series 'R' Part IV.
- 51.15 **Microphones.** All flight crew members required to be on flight deck duty shall communicate through boom or throat microphones.
- 51.16 **Radio Altimeters.**
- 51.16.1 An operator shall not operate a helicopter on a flight over water unless that helicopter is equipped with a radio altimeter with an audio warning operating below a pre-set height and a visual warning capable of operating at a height selectable by the pilot in the following conditions:
 - 51.16.2 When operating out of sight of the land; or
 - 51.16.3 When the visibility is less than 1500 m; or
 - 51.16.4 at night; or
 - 51.16.5 at a distance from land corresponding to more than 3 minutes at normal cruising speed
- 51.17 **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).**
- 51.17.1 Where helicopters are equipped with automatic landing systems, HUD or equivalent displays, EVS, SVS or CVS, or any combination of those systems into a hybrid system, the use of such systems for the safe operation of a helicopter shall be approved by the DGCA.
 - 51.17.2 In approving the operational use of automatic landing systems, a HUD or equivalent displays, EVS, SVS or CVS, the DGCA shall ensure that:
 - (a) the equipment meets the appropriate airworthiness certification requirements;
 - (b) the operator has carried out a safety risk assessment of the operations supported by the automatic landing systems, a HUD or equivalent displays, EVS, SVS or CVS; and

- (c) the operator has established and documented the procedures for the use of, and training requirements for, automatic landing systems, a HUD or equivalent displays, EVS, SVS or CVS.

51.18 Electronic flight bags (EFBs)

51.18.1 EFB Equipment. Where portable EFBs are used on board a helicopter, the operator shall ensure that they do not affect the performance of the helicopter systems, equipment or the ability to operate the helicopter.

51.18.2 EFB Functions. Where EFBs are used on board a helicopter 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.
- (d) DGCA shall approve the operational use of EFB functions to be used for the safe operation of helicopters.

51.18.3 EFB Operational Approval. In approving the operational use of EFBs, the 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 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 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 databases it may use; and

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

52. Helicopter Communication and Navigation Equipment

52.1 Communication Equipment. A helicopter shall be provided with radio communication equipment capable of:

- 52.1.1 conducting two-way communication for heliport control purposes;
- 52.1.2 receiving meteorological information at any time during flight; and
- 52.1.3 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 Para 52.1.1 to 52.1.3 are considered fulfilled if the ability to conduct the communications specified therein is established during radio propagation conditions which are normal for the route.

52.1.4 The radio communication equipment required in accordance with Para 52.1.1 to 52.1.3 shall provide for communications on the aeronautical emergency frequency 121.5 MHz.

52.1.5 For flights in defined portions of airspace or on routes where an RCP type has been prescribed, a helicopter shall, in addition to the requirements specified in Para 52.1.1 to 52.1.3 :

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

Note.— Information on RCP and associated procedures, and guidance concerning the approval process, are contained in the Manual on Required Communication Performance (RCP) (Doc 9869).

52.2 Navigation Equipment.

52.2.1 A helicopter 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, if not so precluded by the appropriate authority, navigation for flights under VFR is accomplished by visual reference to landmarks.

52.2.2 For operations where a navigation specification for performance-based navigation has been prescribed, a helicopter shall, in addition to the requirements specified in Para 52.2.1:

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

52.2.3 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 Para 52.2.1 and, where applicable Para 52.2.2.

52.2.4 On flights in which it is intended to land in instrument meteorological conditions, a helicopter shall be provided with appropriate navigation equipment 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.

52.3 Installation. The equipment installation shall be such that the failure of any single unit required for either communications or navigation purposes or both will not result in the failure of another unit required for communications or navigation purposes.

53. Helicopter Maintenance.

53.1 Operator's Maintenance Responsibilities

53.1.1 Operators shall ensure that, in accordance with procedures as per maintenance requirements contained in CAR-M :

- (a) each helicopter they operate is maintained in an airworthy condition;

- (b) the operational and emergency equipment necessary for the intended flight is serviceable; and
- (c) the certificate of airworthiness of the helicopter they operate remains valid.

53.1.2 An operator shall not operate a helicopter unless it is maintained and released to service by an organization approved in accordance with ICAO Annex 6, Part I, Para 8.7, or under an equivalent system, either of which shall be acceptable to DGCA.

53.1.3 The person signing the maintenance release shall be licensed in accordance with ICAO Annex 1.

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

53.1.5 The operator shall ensure that the maintenance of its helicopters is performed in accordance with the maintenance programme approved by DGCA.

53.2 Operator's Maintenance Control Manual

53.2.1 The operator shall provide, for the use and guidance of maintenance and operational personnel concerned, a maintenance control manual, in accordance with the requirements of ICAO Annex 6 Part III Para 9.2. The design of the manual shall observe Human Factors principles.

53.2.2 The operator shall ensure that the maintenance control manual is amended as necessary to keep the information contained therein up to date.

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

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

53.3 Maintenance Programme.

53.3.1 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 ICAO Annex 6 Part III Para 9.3. The design and application of the operator's maintenance programme shall observe Human Factors principles.

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

53.4 Maintenance Records

53.4.1 An operator shall ensure that the following records are kept for the periods as mentioned in CAR-M:

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

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

53.5 Continuing Airworthiness Information

53.5.1 The operator of a helicopter over 3175 kg maximum mass shall monitor and assess maintenance and operational experience with respect to continuing airworthiness and provide the information as

per CAR -M and report through the system specified in ICAO Annex 8, Part II, Para 4.2.3 (f) and 4.2.4.

53.5.2 The operator of a helicopter over 3175 kg maximum 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 CAR-M.

53.6 Modifications and Repairs. All modifications and repairs shall comply with airworthiness requirements acceptable to the DGCA as mentioned in CAR-M. Procedures shall be established to ensure that the substantiating data supporting compliance with the airworthiness requirements are retained.

53.7 Maintenance Release.

53.7.1 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.

53.7.2 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.

53.8 Records.

53.8.1 An operator shall ensure that the following records are kept:

- (a) in respect of the entire helicopter: the total time in service;
- (b) in respect of the major components of the helicopter:
 - (i) the total time in service;
 - (ii) the date of the last overhaul;
 - (iii) the date of the last inspection;

- (c) in respect of those instruments and equipment, the serviceability and operating life of which are determined by their time in service:
 - (i) such records of the time in service as are necessary to determine their serviceability or to compute their operating life;
 - (ii) the date of the last inspection.

53.8.2 These records shall be kept for a period as specified in CAR-M.

54 Security

54.1 Helicopter Search Procedures 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. The checklist shall be supported by guidance on the course of action to be taken should a bomb or suspicious object be found.

54.2 Safety Training Programme.

54.2.1 Operator shall establish and maintain a training programme which enables crew members to act in the most appropriate manner to minimize the consequences of acts of unlawful interference.

54.2.2 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 a helicopter so that they contribute to the prevention of acts of sabotage or other forms of unlawful interference.

54.3 Reporting Acts of Unlawful Interference. Following an act of unlawful interference, the pilot-in-command shall submit without delay, a report following the act to BCAS and DGCA.

54.4 Compliance with the CAR. The operator shall ensure that all concerned personnel required to implement the provisions of this CAR are given adequate briefing about the content of this CAR and the method of compliance. The policies and procedures laid down by the operator shall also contain this aspect.

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Appendix A

HELICOPTER PERFORMANCE

1. Obstacle Accountability.

1.1 For the purpose of obstacle clearance requirements, an obstacle, located beyond the FATO, in the take-off flight path or the missed approach flight path, shall be considered if its lateral distance from the nearest point on the surface below the intended flight path is not further than:

1.1.1 For VFR operations half of the minimum FATO (or the equivalent term used in the Flight Manual) width defined in the Helicopter Flight Manual (or, when no width is defined $0.75D$), plus 0.25 times D (or 3 m, whichever is greater), plus:

- (a) 0.10 DR for VFR day operations
- (b) 0.15 DR for VFR night operations

1.1.2 For IFR operations $1.5 D$ (or 30 m, whichever is greater), plus:

- (a) 0.10 DR for IFR operations with accurate course guidance
 0.15 DR for IFR operations with standard course guidance
 0.30 DR for IFR operations without course guidance
- (b) When considering the missed approach flight path, the divergence of the obstacle accountability area only applies after the end of the take-off distance available;
- (c) Standard course guidance includes ADF and VOR guidance. Accurate course guidance include ILS, MLS or other course guidance providing an equivalent navigational accuracy.

1.1.3 For operations with initial take-off conducted visually and converted to IFR/ IMC at a transition point, the criteria required in Para 1.1.1 apply up to the transition point then the criteria required in Para 1.1.2 apply after the transition point:

- (a) the transition point cannot be located before the end of TODRH for helicopters operating in Performance Class 1 and before the DPATO for helicopters operating in Performance Class 2;
- (b) For take-off using a backup (or a lateral transition) procedure; for the purpose of obstacle clearance requirements, an obstacle, located in the back-up (or lateral transition) area,

shall be considered if its lateral distance from the nearest point on the surface below the intended flight path is not further than:

- (i) half of the minimum FATO (or the equivalent term used in the Flight Manual) width defined in the Helicopter Flight Manual (or, when no width is defined 0.75 D),
- (ii) plus 0.25 times D (or 3 m, whichever is greater),
- (iii) plus 0.10 for VFR day of the distance travelled from the back of the FATO.

1.2 Detailed instructions on computing heliport/ landing site obstacle avoidance margins are covered in CAR Section 4 Series B Part III.

1.3 Obstacles may be disregarded if they are situated beyond:

- 1.3.1 7 R for day operations if it is assured that navigational accuracy can be achieved by reference to suitable visual cues during the climb;
- 1.3.2 10 R for night operations if it is assured that navigational accuracy can be achieved by reference to suitable visual cues during the climb;
- 1.3.3 300 m if navigational accuracy can be achieved by appropriate navigation aids; and
- 1.3.4 900 m in the other cases.

2. Helicopter Performance Operating Limitations.

2.1 General

- 2.1.1 Helicopters shall be operated in accordance with the provisions of the Flight Manual and in compliance with the provisions of CAR Section 8 Series H Part I.
- 2.1.2 In conditions where the safe continuation of flight is not ensured in the event of a critical engine failure, helicopter operations shall be conducted in a manner that gives appropriate consideration for achieving a safe forced landing.
- 2.1.3 Operations to and from elevated heliports and congested hostile environment shall be carried out only with Performance Class 1 helicopters. The operations in Performance Class 2 should only be

conducted with a safe force landing capability during take-off and landing.

- 2.1.4 Operations from elevated heliports or helidecks are not permitted with Performance Class 3 helicopters.

3 Operating Limitations.

- 3.1 All helicopters shall meet laid down design standards and performance standards.
- 3.2 The level of performance shall be as specified in the Flight Manual duly approved by the State of design and shall be at least substantially equivalent to the overall level embodied in the provisions of this Appendix.
- 3.3 A helicopter shall be operated in compliance with the terms of its certificate of airworthiness and within the approved operating limitations contained in its flight manual.
- 3.4 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 provision of this CAR.
- 3.5 A flight shall not be commenced unless the performance information provided in the flight manual indicates that the provisions of Paras 3.6 and 4 can be complied with, for the flight to be undertaken.
- 3.6 In applying the provisions, account shall be taken of all factors that significantly affect the performance of the helicopter (such as: mass, operating procedures, the pressure-altitude appropriate to the elevation of the operating site, temperature, wind and condition of the surface). 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 the comprehensive and detailed code of performance in accordance with which the helicopter is being operated.

4 Mass Limitations.

- 4.1 The mass of the helicopter at the start of take-off shall not exceed the mass at which the code of performance referred to in Para 5 or 6 or 7 is complied with, allowing for expected reductions in mass as the flight proceeds and for such fuel jettisoning as is appropriate.
- 4.2 In no case shall the mass at the start of take-off exceed the maximum take-off mass specified in the helicopter flight manual.

- 4.3 In no case shall the estimated mass for the expected time of landing at the destination and at any alternate exceed the maximum landing mass specified in the helicopter flight manual.
- 4.4 In no case shall the mass at the start of take-off, or at the expected time of landing at the destination and at any alternate, exceed the relevant maximum mass at which compliance has been demonstrated with the applicable noise certification Standards in ICAO Annex 16 Volume 1 and CAR Section 6 Series C Part II, unless otherwise authorized, by the DGCA, in exceptional circumstances for a certain operating site where there is no noise disturbance problem.

5 Obstacle Data.

- 5.1 The operator shall have a system to obtain details of all obstacle data along the flight path and calculate the take-off, en-route and landing performance taking into account such obstacle data. For Indian airports the operator may obtain obstacle data for calculating the performance of the aircraft from the Airports Authority of India.
- 5.2 The operator shall take account of charting accuracy when considering such obstacle data.
- 5.3 Placards, listings, instrument markings or combinations thereof, containing those operating limitations prescribed by the DGCA / manufacturer for visual presentation, shall be displayed in the helicopter cockpit.

6 Performance Class 1

6.1 General

- 6.1.1 An operator shall ensure that helicopters operated in Performance Class 1 are certificated in Category A.

6.2 Take-Off

- 6.2.1 An operator shall ensure that:
 - (a) The take-off mass does not exceed the maximum take-off mass specified in the Helicopter Flight Manual, for the procedure to be used and to achieve a rate of climb of 100 Ft/Min at 60 m (200 Ft) and 150 ft/min at 300 m (1000 ft) above the level of the heliport with the critical engine inoperative.
 - (b) The take-off mass is such that:

- (i) it is possible to reject the take-off and land on the FATO in case of the critical power-unit failure being recognized at or before the TDP;
 - (ii) the rejected take-off distance required does not exceed the rejected take-off distance available; and
 - (iii) The take-off distance required does not exceed the take-off distance available
 - (iv) As an alternative, the requirement in Para 6.2.1 (b) (i) *ibid* may be disregarded provided that the helicopter, with the critical power unit failure recognized at TDP can, when continuing the take-off, clear all obstacles to the end of the take-off distance required by a vertical margin of not less than 10.7 m (35 ft)
- 6.2.2 When showing compliance with Para 6.2.1 above, account shall be taken of the appropriate parameters of Para 22.5 of this CAR at the heliport of departure.
- 6.2.3 The part of the take-off up to and including TDP shall be conducted in sight of the surface such that a rejected take-off can be carried out.
- 6.2.4 For take-off using a backup (lateral transition) procedure, the operator shall ensure that, with the critical power-unit inoperative, all obstacles in the back-up (lateral transition) area are cleared by an adequate margin.

6.3 Take-Off Flight Path

- 6.3.1 An operator shall ensure that, from the end of the take-off distance required with the critical power unit failure recognized at the TDP:
- (a) The take-off mass is such that the take-off flight path provides a vertical clearance of not less than 10.7 m (35 ft) for VFR operations and 10.7 m (35 ft) + 0.01 DR for IFR operations above all obstacles located in the climb path. Only obstacles as specified in Para 3 4 have to be considered.
 - (b) Where a change of direction of more than 15° is made, adequate allowance is made for the effect of bank angle on the ability to comply with the obstacle clearance requirements. This turn is not to be initiated before reaching a height of 61 m (200 ft) above the take-off surface unless permitted as part of an approved procedure in the Flight Manual.

- 6.3.2 When showing compliance with Para 6.2.1 above, account shall be taken of the appropriate parameters of Para 22.5 of this CAR at the heliport of departure.

6.4 En-Route – Critical Power Unit Inoperative

- 6.4.1 An operator shall ensure that the en-route flight path with the critical power unit inoperative, appropriate to the meteorological conditions expected for the flight complies with either of the following at all points along the route: -
- (a) When it is intended that the flight will be conducted at any time out of sight of the surface, the mass of the helicopter permits a rate of climb of at least 50 ft/minute with the critical power unit inoperative at an altitude of at least 300 m (1000 ft), 600 m (2000 ft) in areas of mountainous terrain, above all terrain and obstacles along the route within 9.3 km (5 nm) on either side of the intended track.
 - (b) When it is intended that the flight will be conducted without the surface in sight, the flight path permits the helicopter to continue flight from the cruising altitude to a height of 300 m (1000 ft) above a landing site where a landing can be made in accordance with Para 89. The flight path clears vertically, by at least 300 m (1000 ft), or 600 m (2000 ft) in areas of mountainous terrain, all terrain and obstacles along the route within 9.3 km (5 nm) on either side of the intended track. Drift-down techniques may be used.
 - (c) When it is intended that the flight will be conducted in VMC with the surface in sight, the flight path permits the helicopter to continue flight from the cruising altitude to a height of 300 m (1000 ft) above a landing site where a landing can be made in accordance with Para 6.4, without flying at any time below the appropriate minimum flight altitude, obstacles within 900m on either side of the route need to be considered.
- 6.4.2 When showing compliance with Para 6.3.1 above, an operator shall ensure that:
- (a) The critical power unit is assumed to fail at the most critical point along the route.
 - (b) Account is taken of the effects of winds on the flight path.

- (c) Fuel jettisoning is planned to take place only to an extent consistent with reaching the heliport or landing site with the required fuel reserves and using a safe procedure.
- (d) Fuel jettisoning is not planned below 1000 ft above terrain.

6.4.3 The width margins of Para 6.4.1 above shall be increased to 18.5 km (10 nm) if the navigational accuracy cannot be met for 95% of the total flying time.

6.5 Landing

6.5.1 An operator shall ensure that:

- (a) The landing mass of the helicopter at the estimated time of landing does not exceed the maximum mass specified in the Helicopter Flight Manual, for the procedure to be used.
- (b) In the event of the critical power unit failure being recognized at any point at or before the LDP, it is possible either to land and stop within the FATO, or to perform a bailed landing and clear all obstacles in the flight path by a vertical margin of 10.7 m (35 ft). Only obstacles as specified in Para 1 ibid have to be considered;
- (c) In the event of the critical power-unit failure being recognized at any point at or after the LDP, it is possible to clear all obstacles in the approach path; and
- (d) In the event of the critical power-unit failure being recognized at any point at or after the LDP, it is possible to land and stop within the FATO.

6.5.2 When showing compliance with Para 6.4 above, account shall be taken of the appropriate parameters of Para 22.5 of this CAR ibid for the estimated time of landing at the destination heliport, or any alternate if required.

6.5.3 That part of the landing from the LDP to touchdown shall be conducted in sight of the surface.

7 Performance Class 2

7.1 General

7.1.1 An operator shall ensure that helicopters operated in Performance Class 2 are certificated in Category A.

7.2 Operations without Assured Safe Forced Landing Capability

7.2.1 An operator shall be satisfied that operations without an assured safe forced landing capability during the take-off and landing phases are not conducted unless the operator has been granted the relevant approval by the DGCA.

7.2.2 Approval.

- (a) Following a risk assessment, an operator may be authorized to conduct operations without an assured safe forced landing capability during the take-off and landing phases, under an approval specifying:
 - (i) The type of helicopter; and
 - (ii) The type of operations.
- (b) Such an approval will be subject to the following conditions:
 - (i) A set of conditions to be implemented by the operator to obtain and maintain the approval for the helicopter type;
 - (ii) Implementation of a Usage Monitoring System

7.2.3 Take-Off

- (a) An operator shall be satisfied that:
 - (i) The take-off mass does not exceed the maximum mass specified for a rate of climb of 150 ft/ min at 300 m (1000 ft) above the level of the heliport with the critical power unit inoperative and the remaining power units operating at an appropriate power rating.
 - (ii) For operations other than specified in Para 7.2, the take-off is conducted such that a safe forced landing can be executed until the point where safe continuation of the flight is possible.
 - (iii) For operations in accordance with Para 7.2 in addition to the requirements of 7.2.3 (a) (i) above:
 - (aa) The take-off mass does not exceed the maximum mass specified in the Helicopter Flight Manual for

an AEO OGE hover in still air with all power units operating at an appropriate power rating.

- (ab) For operations to/ from a helideck with a helicopter that has a maximum approved passenger seating configuration (MAPSC) of more than 19 and for any helicopter operated to/ from a helideck located in a non-congested hostile environment the take-off mass takes into account: the procedure; deck-edge miss; and drop down appropriate to the height of the helideck - with the critical power unit(s) inoperative and the remaining power units operating at an appropriate power rating.

- (b) When showing compliance with Para 7.2.3 above, account shall be taken of the appropriate parameters of Para 22.5 of this CAR at the heliport of departure.
- (c) The part of the take-off before the requirement of Para 7.2.4 is met shall be conducted in sight of the surface.

7.2.4 Take-Off Flight Path

- (a) An operator shall be satisfied that from DPATO or, as an alternative, no later than 200 ft above the take-off surface, with the critical power-unit inoperative the requirements of Para 6.3 are met.

7.2.5 En-Route – Critical Power Unit Inoperative

- (a) An operator shall ensure that the requirements of Para 6.3 are met.

7.2.6 Landing

- (a) An operator shall be satisfied that:
 - (i) The landing mass at the estimated time of landing does not exceed the maximum mass specified for a rate of climb of 150 ft/min at 300 m (1000 ft) above the level of the heliport with the critical power unit inoperative and the remaining power units operating at an appropriate power rating.
- (b) If the critical power unit fails at any point in the approach path:

- (i) a balked landing can be carried out meeting the requirement of Para 7.2; or
 - (ii) for operations other than specified in Para 7.2.2 the helicopter can perform a safe-forced-landing.
- (c) For operations in accordance with Para 7.2 in addition to the requirements of Para 7.2.2 (a) above:
 - (i) The landing mass does not exceed the maximum mass specified in the Helicopter Flight Manual for an AEO OGE hover in still air with all power units operating at an appropriate power rating.
 - (ii) For operations to/ from a helideck with a helicopter that has a maximum approved passenger seating configuration (MAPSC) of more than 19 and any helicopters operated to/from a helideck located in a non-congested hostile environment the landing mass takes into account the procedure, and drop down appropriate to the height of the helideck - with the critical power unit inoperative and the remaining power unit(s) operating at an appropriate power rating.
- (d) When showing compliance with Para 7.2 above, account shall be taken of the appropriate parameters of Para 22.5 of this CAR at the destination heliport or any alternate, if required.
- (e) The part of the landing after which the requirement of Para 7.2.3 cannot be met shall be conducted in sight of the surface.

8. Performance Class 3

8.1 General

8.1.1 An operator shall ensure that:

- (a) Helicopters operated in Performance Class 3 are certificated in either Category A or B.
- (b) Operations are only conducted from/ to those heliports and over such routes, areas and diversions contained in a non-hostile environment, except for the take-off and landing phase as provided in Para 8.1.2 below .

8.1.2 An operator may conduct operations to/from a heliport located outside a congested hostile environment, without an assured safe

forced landing capability limited to the take-off and landing phases as follows:

- (a) during take-off; before reaching V_y or 200 ft above the take-off surface; or
- (b) during landing; below 200 ft above the landing surface;

8.1.3 An operator shall ensure that operations are not conducted:

- (a) out of sight of the surface;
- (b) at night;
- (c) when the ceiling is less than 600 ft; or
- (d) when the visibility is less than 1000m.

8.2 Take-Off

8.2.1 An operator shall ensure that:

- (a) The take-off mass does not exceed the maximum take-off mass specified for a hover in ground effect with all power units operating at take-off power. If conditions are such that a hover in ground effect is not likely to be established, the take-off mass shall not exceed the maximum take-off mass specified for a hover out of ground effect with all power units operating at take-off power.
- (b) in the event of a power unit failure, the helicopter is able to perform a safe forced landing, except when operated in accordance with the alleviation contained in Para 8.1.2.

8.3 En-Route

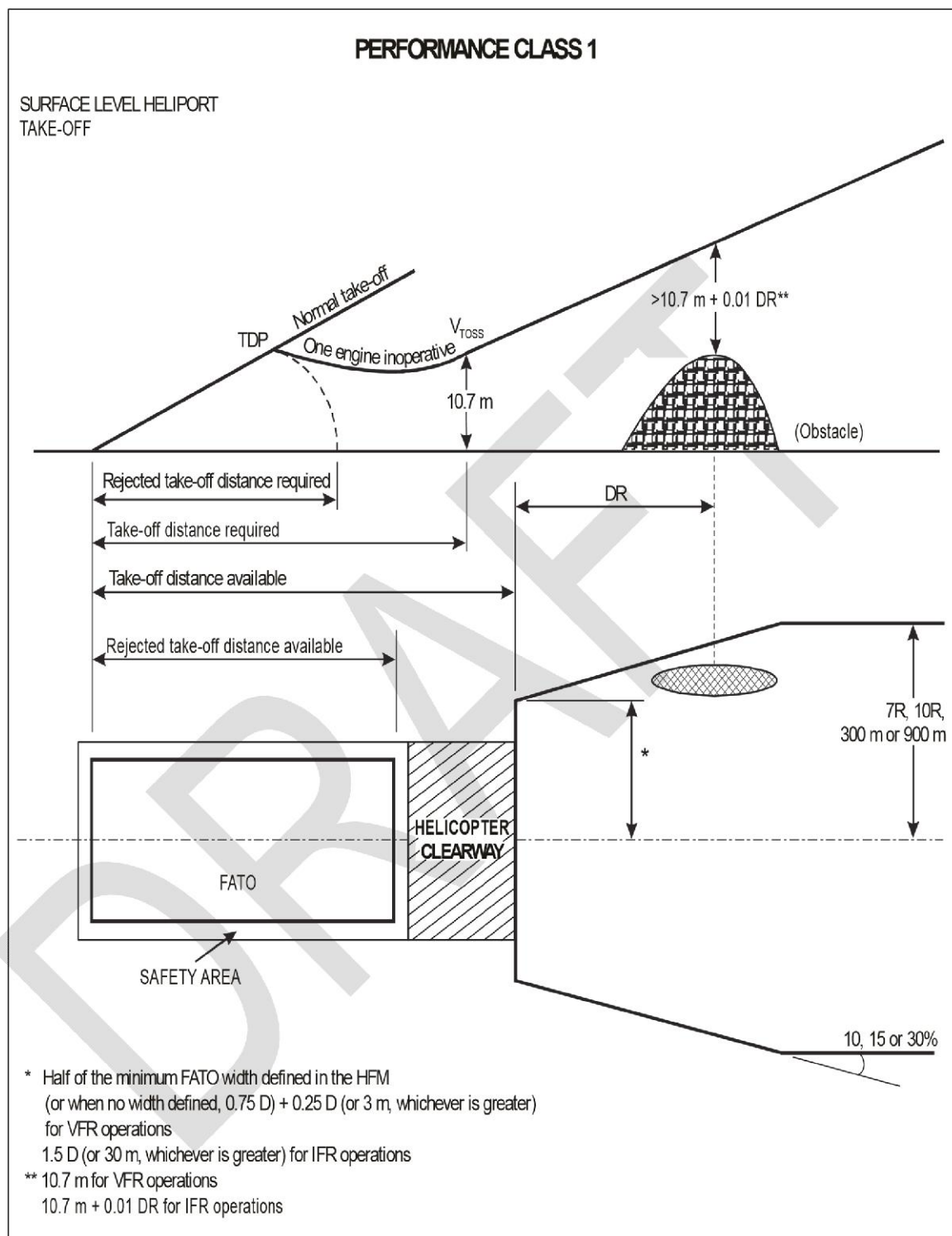
8.3.1 An operator shall ensure that:

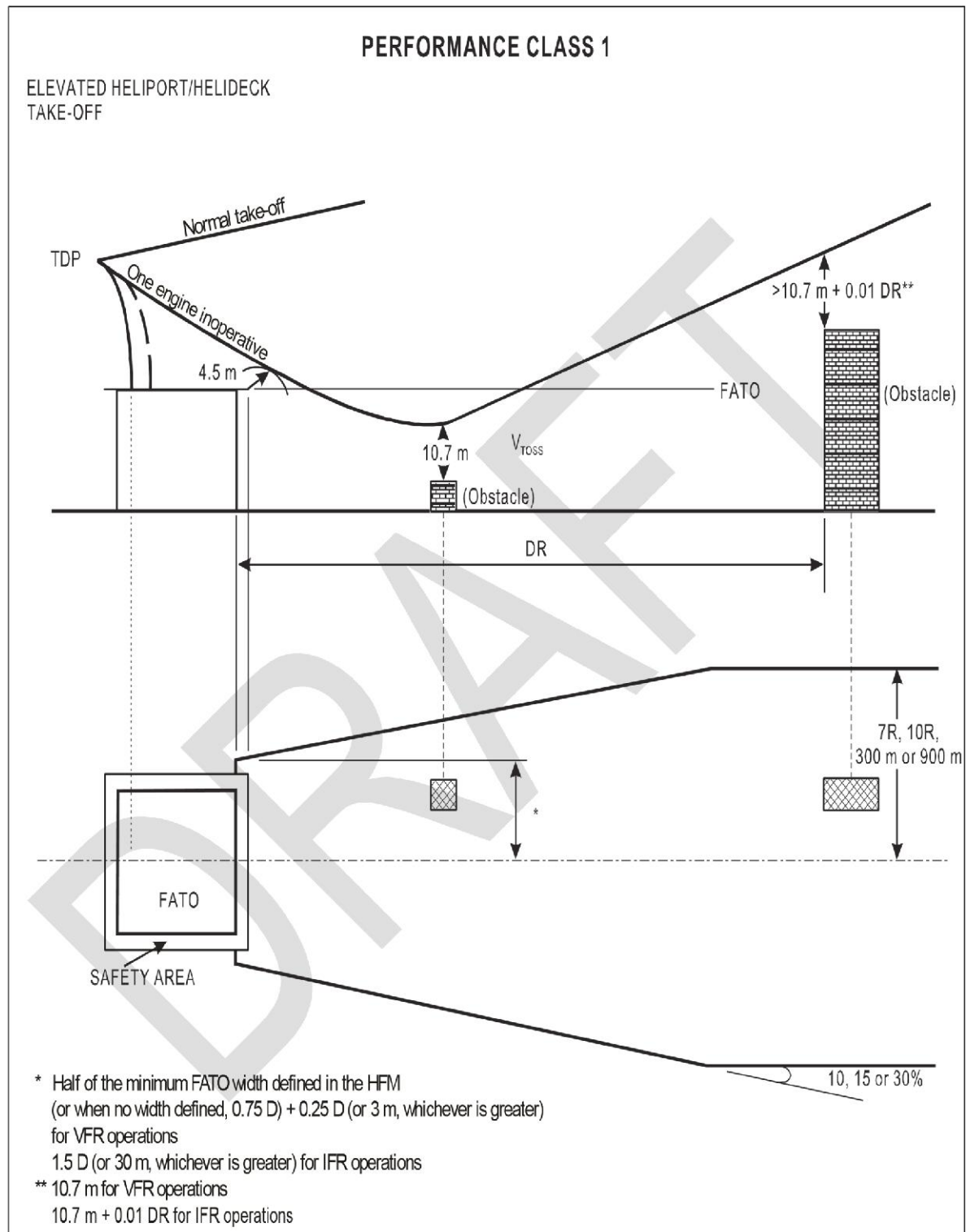
- (a) The helicopter is able, with all power units operating within the maximum continuous power conditions specified, to continue along its intended route or to a planned diversion without flying at any point below the appropriate minimum flight altitude; and
- (b) in the event of a power unit failure, the helicopter is able to perform a safe forced landing .

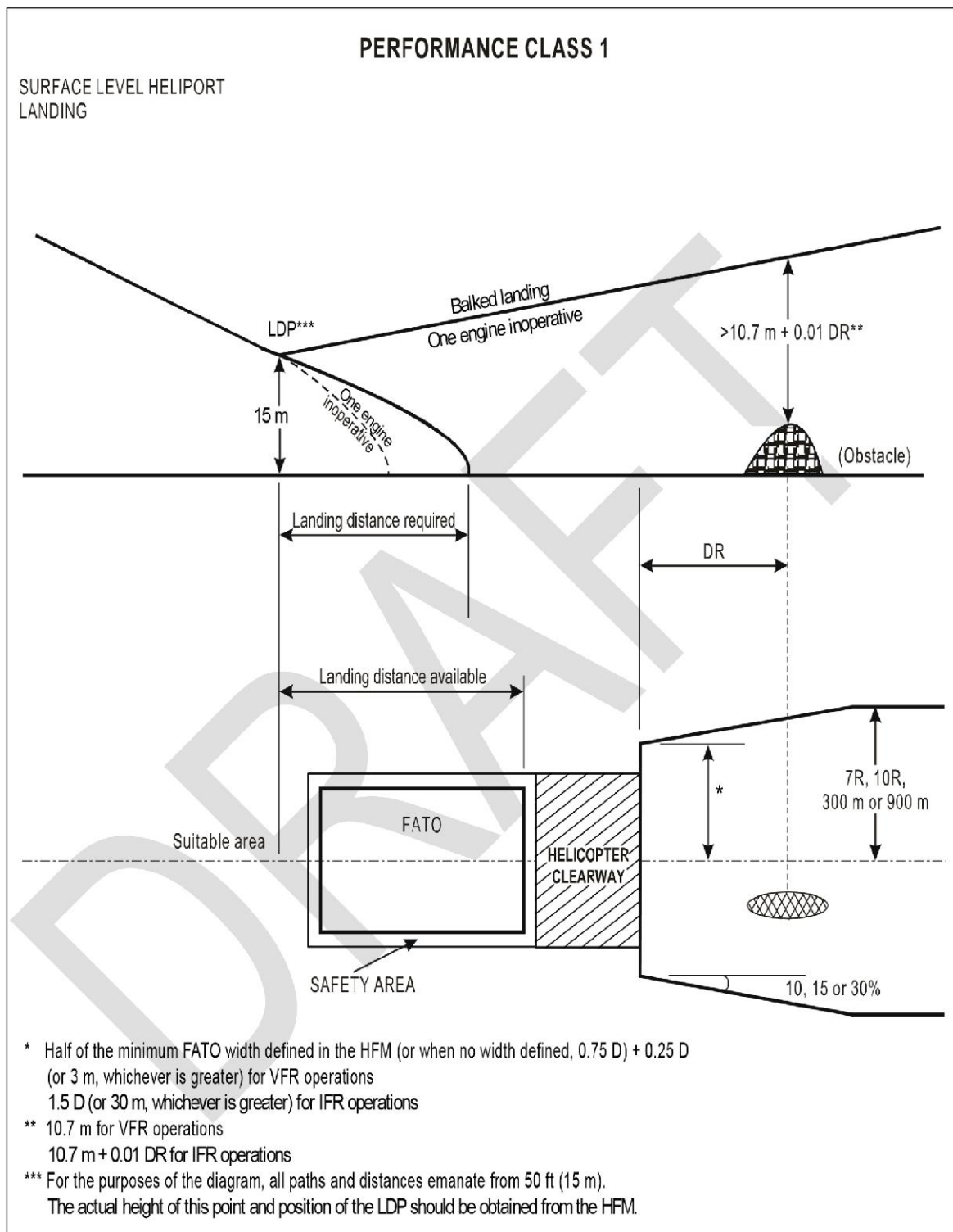
8.4 Landing

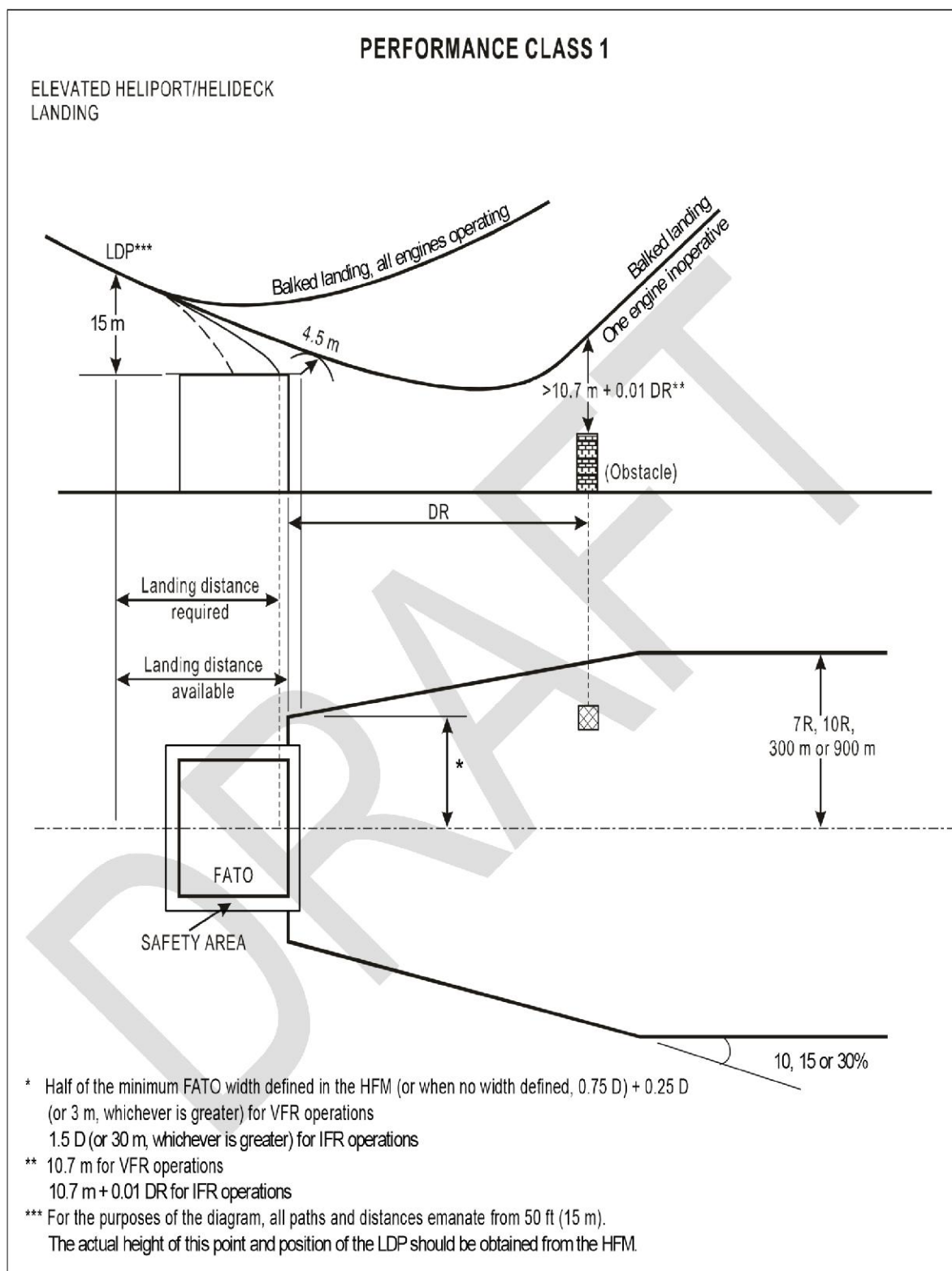
8.4.1 An operator shall ensure that:

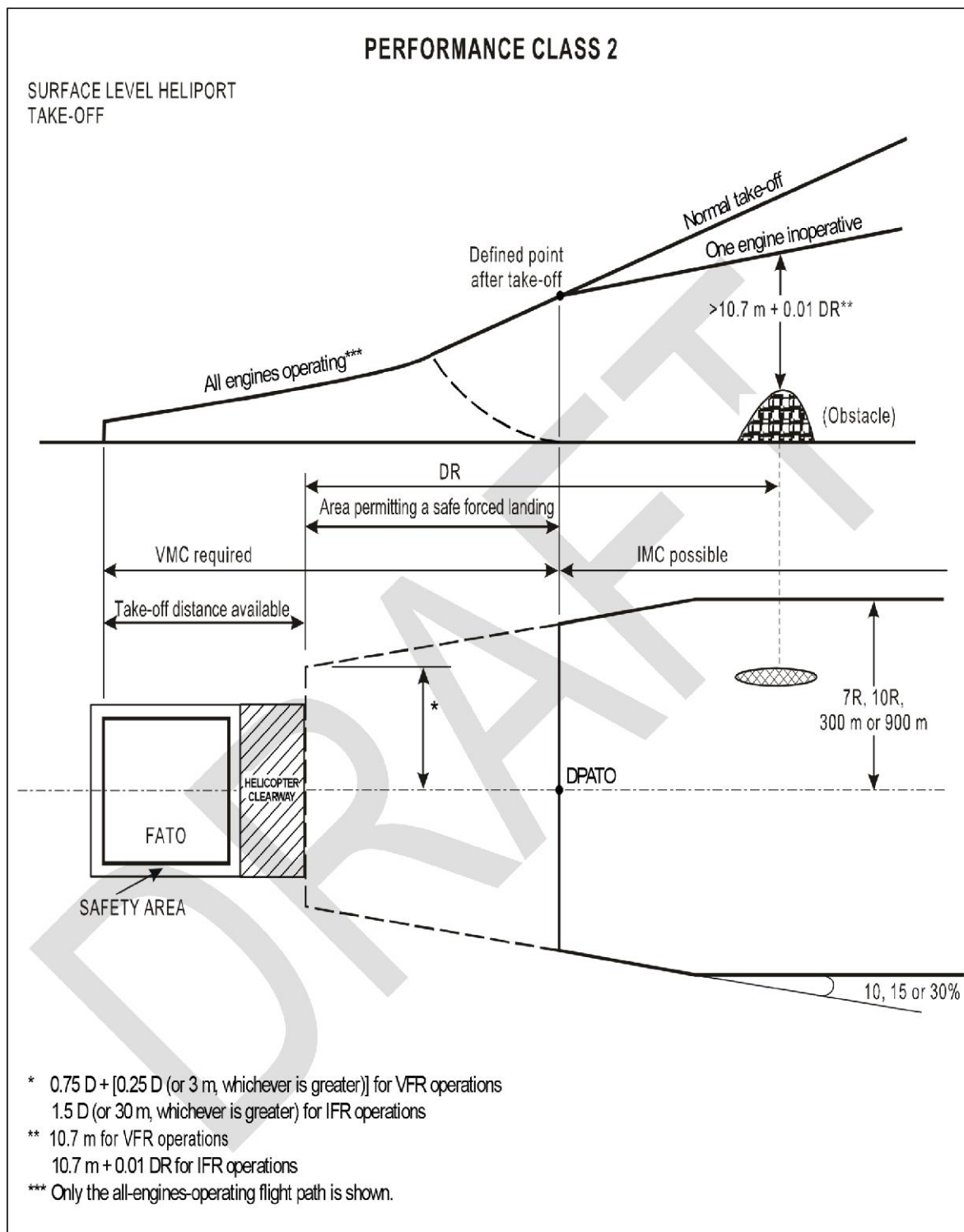
- (a) The landing mass of the helicopter at the estimated time of landing does not exceed the maximum landing mass specified for a hover in ground effect, with all power units operating at take-off power. If conditions are such that a hover in ground effect is not likely to be established, the landing mass shall not exceed the maximum landing mass specified for a hover out of ground effect with all power units operating at take-off power.
- (b) In the event of a power unit failure, the helicopter is able to perform a safe forced landing, except when operated in accordance with the alleviation contained in Paras 8.1.1 (b) or 8.1.2.

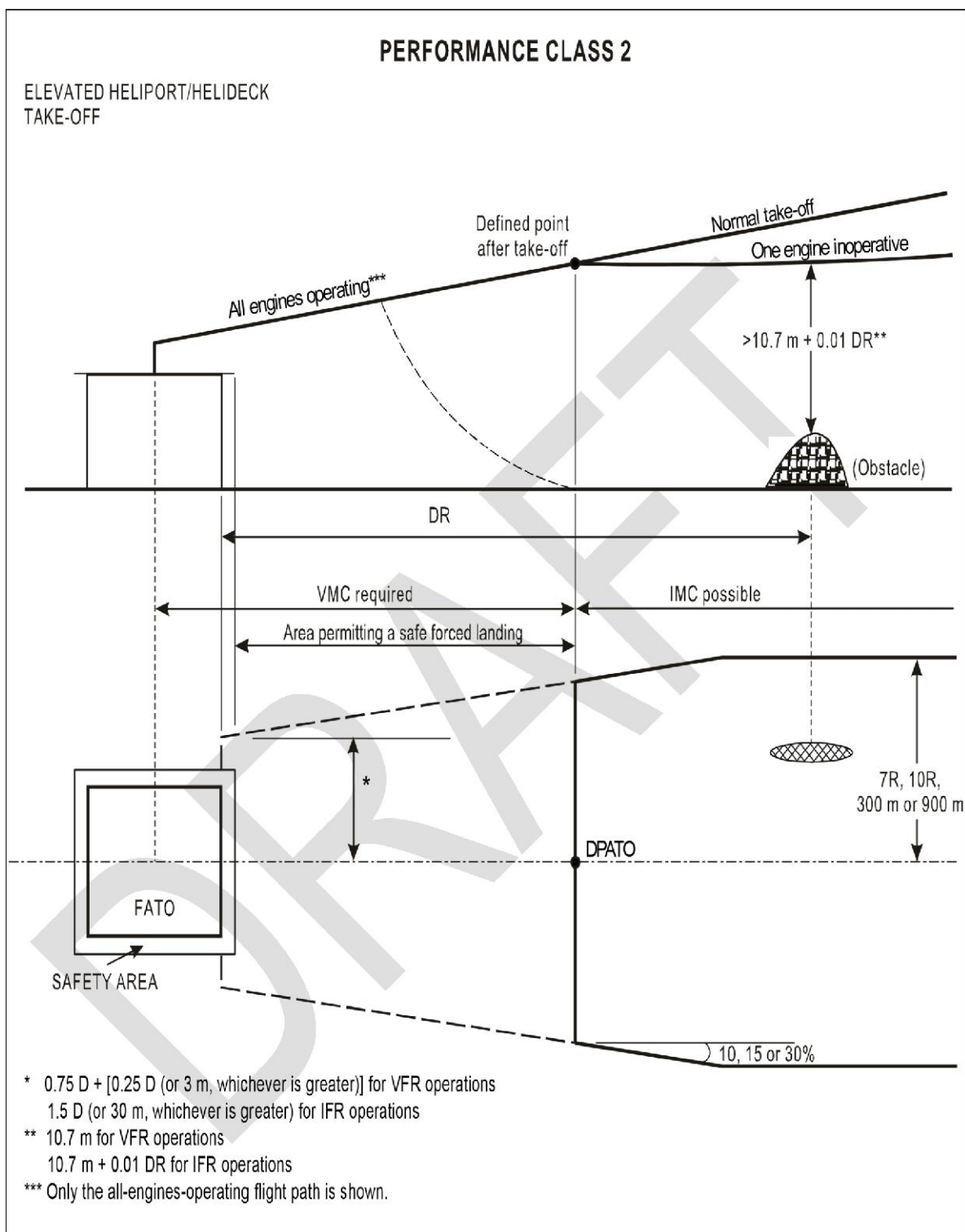


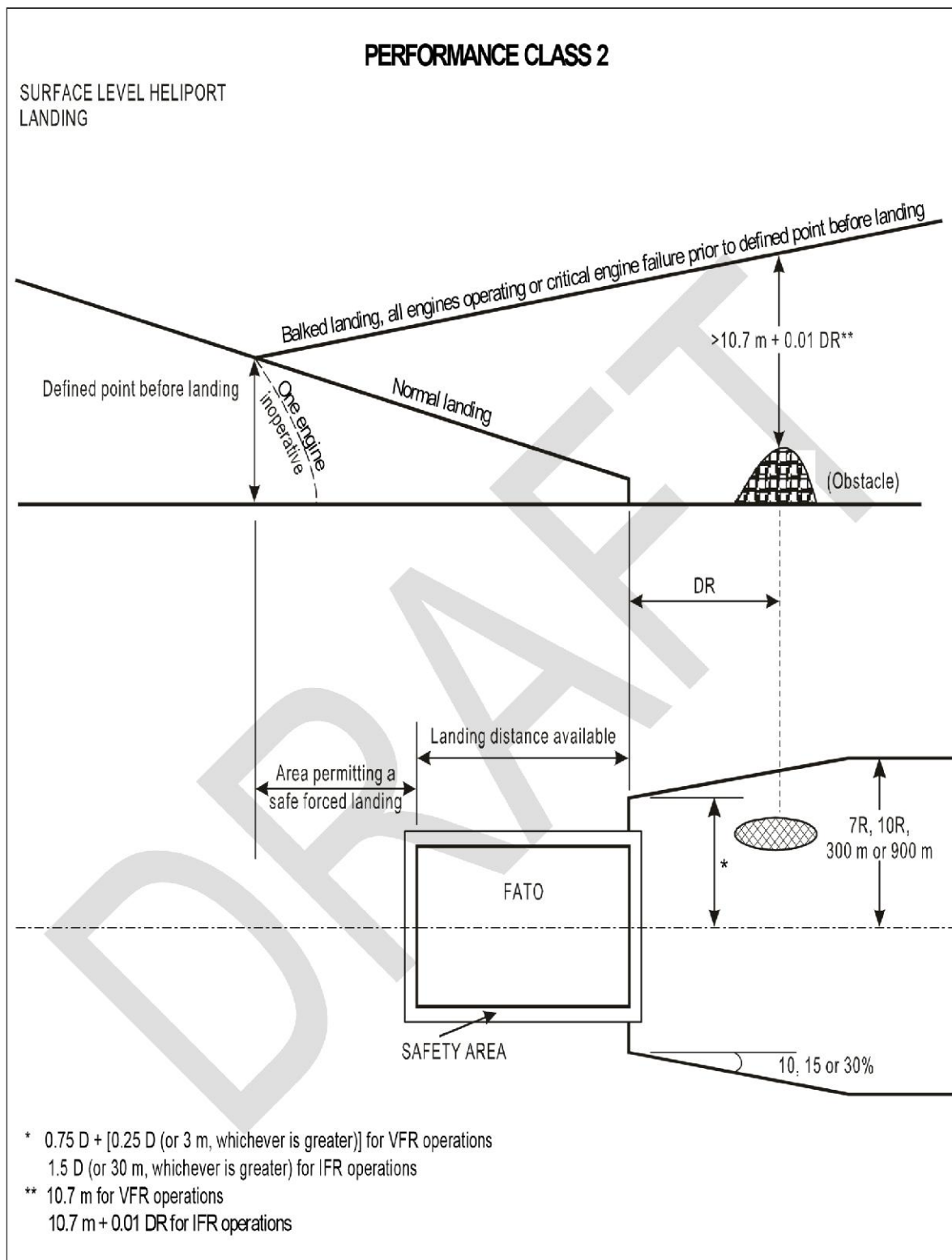


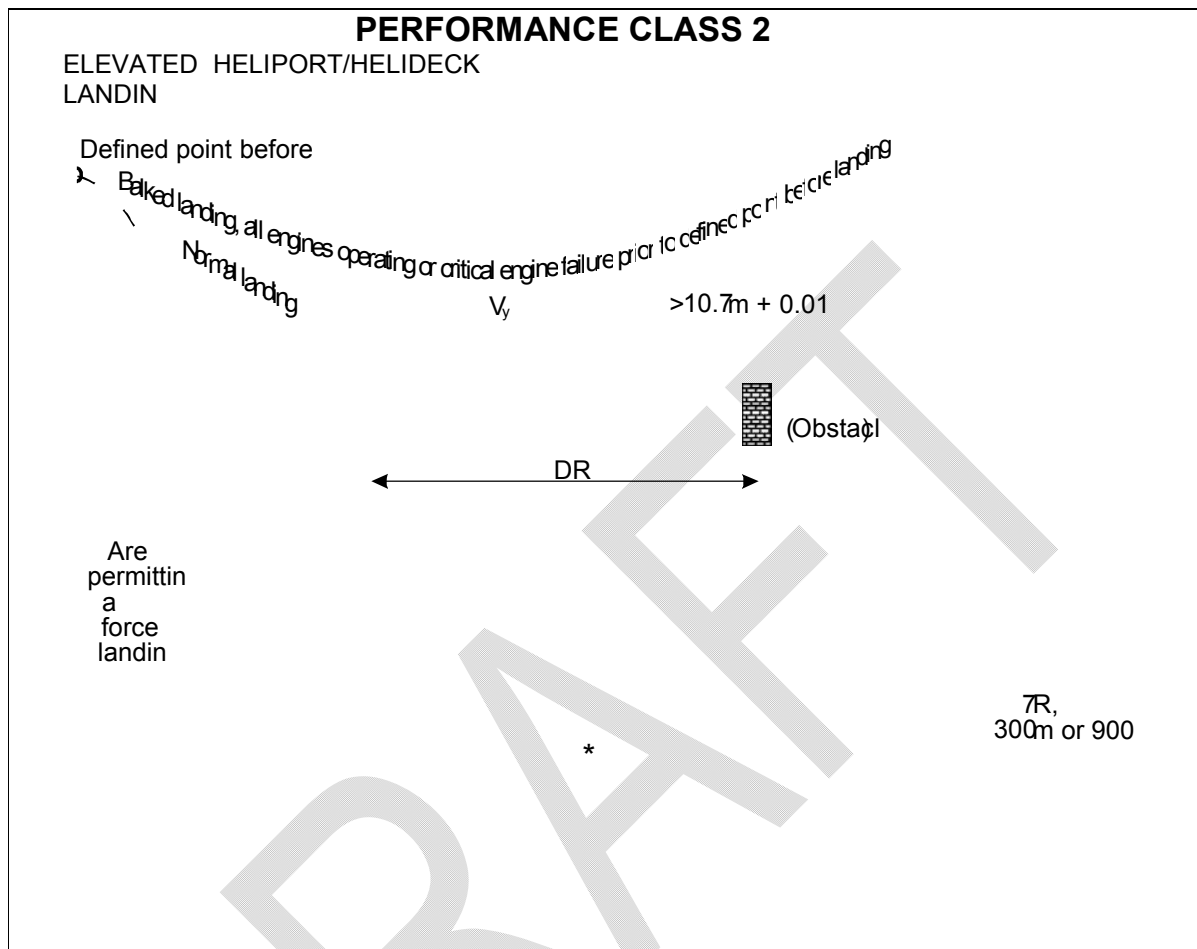












SAFETY AREA	FATO	
		Landing availabl 10 , 15 or 30% * $0.75 D + [0.25 D \text{ (or 3 m, whichever is greater)}]$ for VFR operations $1.5 D \text{ (or 30 m, whichever is greater)}$ for IFR operations ** 10.7 m for VFR operations $10.7 \text{ m} + 0.01 DR$ for IFR operations