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OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION
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Subject: OPERATION OF GENERAL AVIATION HELICOPTERS

INTRODUCTION

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

APPLICABILITY

This CAR is applicable to operation of helicopters, and all pilots flying helicopters, in General Aviation. This CAR has been issued under the provision of Rule 29C and Rule 133A of the Aircraft Rules 1937, for adoption of the minimum operational, equipment and instrument requirement of ICAO and is in conformity with Annex 6 Part III.

DEFINITIONS

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

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

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

Aircraft operating manual. A manual, acceptable to DGCA containing normal, abnormal and emergency procedures, checklists, limitations, performance information, details of the aircraft systems and other material relevant to the operation of the aircraft.

Note. The aircraft operating manual is part of the Operations manual.

Air Operator Certificate. An operating certificate or an equivalent document issued by DGCA authorizing an operator to carry out specified commercial air transport operations.

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

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

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

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

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

Approach and landing phase - helicopters. That part of the flight from 300 m (1000 ft) 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 bailed landing point.

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

Area navigation (RNAV). A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space-based navigation

aids or within the limits of the capability of self-contained aids, or a combination of these.

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

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

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

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

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

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

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

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

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

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

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

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

Continuous descent final approach (CDFA). A technique, consistent with stabilized approach procedures, for flying the final approach segment of a non-precision instrument approach procedure as a continuous descent, without level-off, from an altitude/height at or above the final approach fix altitude/height to a point approximately 15 m (50 ft) above the landing runway threshold or the point where the flare manoeuvre should begin for the type of aircraft flown.

Controlled Flight. Any flight which is subject to an air traffic control clearance.

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

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

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

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

Note.- Dangerous goods are classified in Annex 18 Chapter 3 and Aircraft (Carriage of Dangerous Goods) Rules, 2003

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

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

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

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

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

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

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

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

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

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

Duty. Any task that flight or cabin crew members are required by the operator to perform, including, for example, flight duty, administrative work, training, positioning and standby when it is likely to induce fatigue.

Duty period. A period which starts when a flight or cabin crew member is required by an operator to report for or to commence a duty and ends when that person is free from all duties.

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

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

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

- (a) *Automatic fixed ELT (ELT (AF)).* An automatically activated ELT which is permanently attached to an aircraft.
- (b) *Automatic portable ELT (ELT(AP)).* An automatically activated ELT which is rigidly attached to an aircraft but readily removable from the aircraft.
- (c) *Automatic deployable ELT (ELT(AD)).* An ELT which is rigidly attached to an aircraft and which is automatically deployed and activated by impact, and, in some cases also by hydrostatic sensors. Manual deployment is also provided.
- (d) *Survival ELT (ELT(S)).* An ELT which is removable from an aircraft, stowed so as to facilitate its ready use in an emergency, and manually activated by survivors.

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

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

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

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

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

Fatigue. A physiological state of reduced mental or physical performance capability resulting from sleep loss, extended wakefulness, circadian phase, and/or workload (mental and/or physical activity) that can impair a person's alertness and ability to adequately perform safety-related operational duties.

Fatigue risk management system (FRMS). A data-driven means of continuously monitoring and managing fatigue-related safety risks, based upon scientific principles and knowledge as well as operational experience that aims to ensure relevant personnel are performing at adequate levels of alertness.

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.

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

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

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

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

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

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

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

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

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

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

- (a) *a flight simulator* which provides an accurate representation of the flight deck of a particular aircraft type to the extent that the mechanical, electrical, electronic, etc. aircraft systems control functions, the normal environment of flight crew members, and the performance and flight characteristics of that type of aircraft are realistically simulated;
- (b) *a flight procedures trainer* which provides a realistic flight deck environment, and which simulates instrument responses, simple control functions of mechanical, electrical, electronic, etc. aircraft systems, and the performance and flight characteristics of aircraft of a particular class;
- (c) *a basic instrument flight trainer* which is equipped with appropriate instruments, and which simulates the flight deck environment of an aircraft in flight in instrument flight conditions.

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

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

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

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

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

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

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

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

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

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

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

Hostile environment. An environment in which:

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

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

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

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

- (a) a two-dimensional (2D) instrument approach operation, using lateral navigation guidance only; and
- (b) a three-dimensional (3D) instrument approach operation, using both lateral and vertical navigation guidance.

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

- (a) a ground-based radio navigation aid; or
- (b) computer-generated navigation data from ground-based, space-based, self-contained navigation aids or a combination of these.

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

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

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

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

Precision approach (PA) procedure. An instrument approach procedure based on navigation systems (ILS, MLS, GLS and SBAS CAT I) designed for 3D instrument approach operations Type A or B.

Note.— Refer to Para 2.2.8.3, for instrument approach operation types.

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

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

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

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

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

Note.- LDP applies only to helicopters operating in performance Class I.

Landing distance available (LDAH). The length of the final approach and take-off area plus any additional area declared available and suitable for helicopters to complete the landing manoeuvre from a defined height.

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.

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

Maintenance.^{††} The performance of tasks on an aircraft, engine, propeller or associated part required to ensure the continuing airworthiness of an aircraft, engine, propeller or associated part including any one or combination of overhaul, inspection, replacement, defect rectification, and the embodiment of a modification or repair.

[†] Applicable until 4 November 2020.

^{††} Applicable as of 5 November 2020.

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

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

Maintenance release.^{††} A document which contains a certification confirming that the maintenance work to which it relates has been completed in a satisfactory manner, either in accordance with appropriate airworthiness requirements.

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

Maximum mass. Maximum certificated take-off mass.

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

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

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

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

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

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

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

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

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

- (a) *Required Navigation Performance (RNP) specification.* A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.
- (b) *Area Navigation (RNAV) specification.* A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV1.

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

Note 2.- The term RNP, previously defined as “a statement of navigation performance necessary for operation within a defined airspace”, has been removed from this annex as the concept of RNP has been overtaken by the concept of PBN. The term RNP in this CAR is now solely used in the context of

navigation and specification that require performance monitoring and alerting, e. g. RNP 4 refers to the aircraft and operating requirements, including a 4 NM lateral performance with on-board performance monitoring and alerting that are detailed in Doc 9613.

Night. The hours between the end of evening civil twilight and the beginning of morning civil twilight or such other period between sunset and sunrise as prescribed by Aircraft Rules 1937.

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

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

Non-hostile environment. An environment in which:

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

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

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

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

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

Offshore operations. Operations which routinely have a substantial proportion of the flight conducted over sea areas to or from offshore locations. Such operations include,

but are not limited to, support of offshore oil, gas and mineral exploitation and sea-pilot transfer.

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

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

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

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

Operations 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.

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.

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.

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

Operations specifications. The authorizations, conditions and limitations associated with the air operator permit/ certificate and subject to the conditions in the operations manual.

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

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

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

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

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

Note.— Performance requirements are expressed in navigation specifications (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

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

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

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

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

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

R. The rotor radius of the helicopter.

Rejected take-off distance required (RTODR). The horizontal distance required from the start of the take-off to the point where the helicopter comes to a full stop following an engine failure and rejection of the take-off at the take-off decision point.

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.

Repair.^{††} The restoration of an aeronautical product aircraft, engine or associated part 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, in accordance with the appropriate airworthiness requirements after it has been damaged or subjected to wear.

† Applicable until 4 November 2020.

†† Applicable as of 5 November 2020.

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

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

Rest period. A continuous and defined period of time, subsequent to and/or prior to duty, during which flight or cabin crew members are free of all duties.

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

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

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

Scheduled Commuter Operations means air transport operations undertaken between two or more places/ routes according to a published time table or with flights so regular or frequent that they constitute a recognizably systematic series, each flight being open to use by members of public. Tickets are sold to individual passenger for such flights.

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

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

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

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

Note. — *In the case of the registration of aircraft of an international operating agency on other than a national basis, the States constituting the agency are jointly and severally bound to assume the obligations which, under the Chicago Convention, attach to a State of Registry.*

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

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

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

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

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

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

Note. - *TDP applies only to helicopters operating in performance Class I.*

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.

Take-off distance required (TODRH). The horizontal distance required from the start of the take-off to the point at which VTOSS, a selected height and a positive climb gradient are achieved, following failure of the critical engine being recognized at TDP, the remaining engines operating within approved operating limits.

Note.— *The selected height stated above is to be determined with reference to either:*

a) the take-off surface; or

b) a level defined by the highest obstacle in the take-off distance required.

Take-off flight path. The vertical and horizontal path, with the critical engine inoperative, from a specified point in the take-off to 300 m (1 000 ft) above the surface.

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

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

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

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

V_{Toss}. The minimum speed at which climb shall be achieved with the critical engine inoperative, the remaining engines operating within approved operating limits. Also defined as the take-off safety speed for helicopters certificated in Category A.

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

V_y. Best rate of climb speed.

1. GENERAL REQUIREMENTS

1.1 Compliance with Laws, Regulations and Procedures

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

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

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

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

- 1.1.5 The pilot-in-command should have available on board the helicopter essential information concerning the search and rescue services in the areas over which it is intended the helicopter will be flown.
- 1.2 **Dangerous goods.** The pilot-in-command shall adhere to the provisions for carriage of dangerous goods as contained in Aircraft (Carriage of Dangerous Goods) Rules, 2003 and CARs in Section 11.
- 1.3 **Use of psychoactive substances.** The pilot-in-command shall adhere to the provisions concerning the use of psychoactive substances as contained in Rule 24 of the Aircraft Rules, 1937 and CAR Section 9 Series 'C' Part I.
- 1.4 **Specific approvals.**
- 1.4.1 The pilot-in-command shall not conduct operations for which a specific approval is required unless such approval has been issued by the DGCA. Specific approvals shall follow the layout and contain at least the information listed in CAR Section 8 Series O Part IV.

2. FLIGHT OPERATIONS

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

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

2.2 Heliport or landing location operating minima

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

Note.— This standard does not require DGCA to establish operating minima.

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

Note 1.— Operational credit includes:

- (i) for the purposes of an approach ban (2.6.3.2), a minima below the heliport or landing location operating minima;*

(ii) *reducing or satisfying the visibility requirements; or*

(iii) *requiring fewer ground facilities as compensated for by airborne capabilities.*

Note 2.— Guidance on operational credit for aircraft equipped with automatic landing systems, a HUD or equivalent displays, EVS, SVS and CVS is contained in Attachment I and in the Manual of All-Weather Operations (Doc 9365).

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

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

2.3 Briefing

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

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

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

2.4 Helicopter airworthiness and safety precautions

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

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

- (b) the instruments and equipment including the emergency equipment installed in the helicopter are appropriate and serviceable, taking into account the expected flight conditions;
- (c) any necessary maintenance has been performed in accordance with para 6;
- (d) the mass of the helicopter and centre of gravity location are such that the flight can be conducted safely, taking into account the flight conditions expected;
- (e) any load carried is properly distributed and safely secured;
- (f) it carries sufficient fuel and oil for the intended flight in accordance with Para 2.8;
- (g) the engines is developing the rated power;
- (h) the various documents required for the flight are valid and are on board;
- (i) the helicopter has current and valid Certificate of Release to Service;
- (j) there is no physical damage apparent during his walk around inspection; and
- (k) the helicopter operating limitations, contained in the flight manual, or its equivalent, will not be exceeded.

Note.- As regard to item 2.4.1 (g), the pilot shall ensure before take-off that engine(s) is / are developing correct power.

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

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

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

2.6 **Limitations imposed by weather conditions**

2.6.1 *Flight in accordance with VFR.* A flight, except one of purely local character in visual meteorological conditions, to be conducted in accordance with VFR

shall not be commenced unless current meteorological reports, or a combination of current reports and forecasts, indicate that the meteorological conditions along the route, or that part of the route to be flown under the visual flight rules, will, at the appropriate time, be such as to enable compliance with these rules.

2.6.2 Flight in accordance with IFR

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

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

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

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

2.6.3 Heliport operating minima

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

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

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

2.6.3.3 If, after entering the final approach segment or after descending below 300 m (1 000 ft) 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, a helicopter shall not continue its approach-to-land

beyond a point at which the limits of the heliport operating minima would be infringed.

2.6.4 *Flight in icing conditions*

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

2.7 *Alternate heliports*

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

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

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

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

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

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

2.8 Fuel and oil requirements

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

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

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

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

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

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

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

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

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

geographic and environmental considerations, enable a safe landing to be made.

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

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

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

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

2.9 In-flight fuel management

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

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

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

Note 1.— The declaration of MINIMUM FUEL informs ATC that all planned landing site options have been reduced to a specific landing site of intended landing, that no precautionary landing site is available, and any change to the existing clearance, or air traffic delays, may result in landing with less than the

planned final reserve fuel. This is not an emergency situation but an indication that an emergency situation is possible should any additional delay occur.

Note 2.— A precautionary landing site refers to a landing site, other than the site of intended landing, where it is expected that a safe landing can be made prior to the consumption of the planned final reserve fuel.

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

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

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

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

2.10 Oxygen supply

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

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

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

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

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

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

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

2.13 **Weather reporting by pilots.** When weather conditions likely to affect the safety of other aircraft are encountered, they should be reported as soon as possible.

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

2.15 **Fitness of flight crew members.** The pilot-in-command shall be responsible for ensuring that a flight:

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

2.16 **Flight crew members at duty stations**

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

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

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

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

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

2.17 Instrument flight procedures

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

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

Note 1.— See CAR Section 8 Series O Part IV, Para 2.2.8.3, for instrument approach operation classifications.

Note 2.— Information for pilots on flight procedure parameters and operational procedures is contained in PANS-OPS (Doc 8168), Volume I. Criteria for the construction of instrument flight procedures for the guidance of procedure specialists are provided in PANS-OPS (Doc 8168), Volume II. Obstacle clearance criteria and procedures used in certain States may differ from PANS-OPS, and knowledge of these differences is important for safety reasons (see Section II, Chapter 1, 1.1.1).

2.18 **Instruction – General.** The rotor of a helicopter shall not be turned under power without a qualified pilot at the controls.

2.19 Refuelling with passengers on board or rotors turning

2.19.1 A helicopter shall not be refuelled when the rotor is turning or the engines are running, unless the operator is granted specific authorization by DGCA setting forth the conditions under which such fuelling may be carried out. The operator shall also adhere to all precautions laid down in Rule 25A of the Aircraft Rules, 1937 regarding fuelling of aircraft.

2.19.2 When refuelling with passengers embarking, on board or disembarking, it should be attended by the pilot-in-command or other qualified personnel ready to initiate and direct an evacuation of the helicopter by the most practical and expeditious means available. Two way communications should be maintained by helicopter intercommunications system or other suitable means between the ground crew, supervising the refuelling and the pilot-in-command or other qualified personnel.

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

Note 2.— Additional precautions are required when refuelling with fuels other than aviation kerosene or when refuelling results in a mixture of aviation kerosene with other aviation turbine fuels, or when an open line is used.

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

3. HELICOPTER PERFORMANCE OPERATING LIMITATIONS

3.1 A helicopter shall be operated:

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

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

3.3 Helicopters shall be operated in accordance with Performance Classes 1 or 2 or 3, in compliance with the applicable Standards given at Appendix A to this CAR. Single-engine helicopters shall not be permitted to operate from elevated heliports or helidecks in a congested hostile environment.

4. HELICOPTERS INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

4.1 All helicopters on all flights

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

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

4.1.3 Equipment

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

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

Note.—Refer to 4.1.3.2 for fire extinguishing agents.

- (c)
 - (i) a seat or berth for each person over an age of two years; and
 - (ii) a seat belt for each seat and restraining belts for each berth;
- (d) the following manuals, charts and information:
 - (i) the flight manual or other documents or information concerning any operating limitations prescribed for the helicopter by the DGCA/ Manufacturer, required for the application of para 3;
 - (ii) any specific approval issued by the DGCA, if applicable, for the operation(s) to be conducted;
 - (iii) current and suitable charts for the route of the proposed flight and all routes along which it is reasonable to expect that the flight may be diverted;
 - (iv) procedures, as prescribed in CAR Section 9 Series 'C' Part I, for pilot-in-command of intercepted aircraft; and
 - (v) a list of visual signals for use by intercepting and intercepted aircraft, as contained in CAR Section 9 Series 'C' Part I, and
 - (vi) the journey log book for the helicopter; and
- (e) if fuses are used, spare electrical fuses of appropriate ratings for replacement of those accessible in flight.

4.1.3.2 Any agent used in a built-in fire extinguisher for each lavatory disposal receptacle for towels, paper or waste in a helicopter for which the individual certificate of airworthiness is first issued on or after 31 December 2011 and any

extinguishing agent used in a portable fire extinguisher in an aeroplane for which the individual certificate of airworthiness is first issued on or after 31 December 2018 shall:

- (a) meet the applicable minimum performance requirements; and
- (b) not be of a type listed in Annex A, Group II of the Montreal Protocol on Substances That Deplete the Ozone Layer, 8th Edition, 2009.

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

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

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

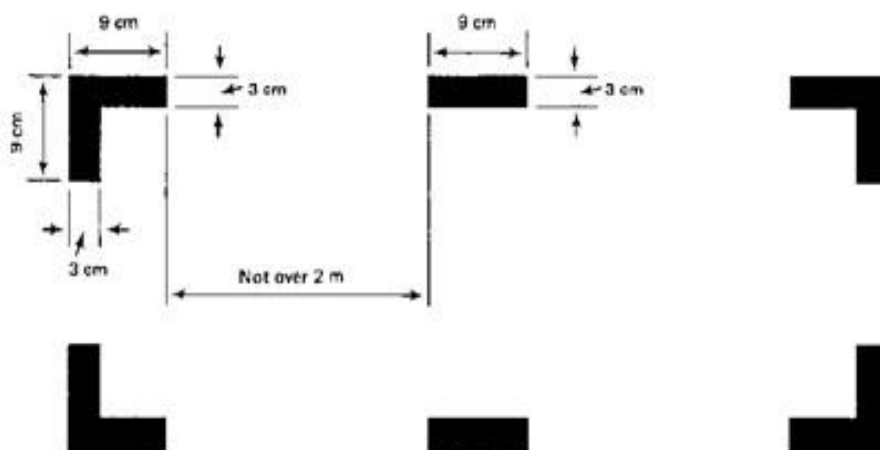
Note. - Safety harness includes shoulder strap(s) and a seat belt which may be used independently.

4.1.4 *Marking of break-in points*

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

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

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



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

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

(a) equipped with:

- (i) a magnetic compass;
- (ii) an accurate timepiece indicating the time in hours, minutes and seconds;
- (iii) a sensitive pressure altimeter;
- (iv) an airspeed indicator;
- (v) main rotor rpm indicator;
- (vi) fuel quantity indicator for each tank;
- (vii) Torque indicator, where applicable; and
- (viii) such additional instruments or equipment as may be prescribed by DGCA.

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

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

- (a) the equipment specified in 4.2.1;
- (b) an attitude indicator (artificial horizon) for each required pilot;
- (c) a slip indicator;
- (d) a heading indicator (directional gyroscope);
- (e) a rate of climb and descent indicator;
- (f) such additional instruments or equipment as may be prescribed by DGCA;

and the following lights:

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

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

- (h) a landing light;
- (i) illumination for all flight instruments and equipment that are essential for the safe operation of the helicopter;
- (j) lights in all passenger compartments; and
- (k) a flashlight for each crew member station.

4.2.2.1 The landing light should be trainable at least in the vertical plane.

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

- (a) equipped with:
 - (i) a magnetic compass;
 - (ii) a sensitive pressure altimeter;

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

- (iii) an airspeed indicating system with a means of preventing malfunctioning due to either condensation or icing;
 - (iv) a slip indicator;
 - (v) an attitude indicator (artificial horizon) for each required pilot and one additional attitude indicator;
 - (vi) a heading indicator (directional gyroscope);
 - (vii) a means of indicating whether the supply of power to the gyroscopic instruments is adequate;
 - (viii) a means of indicating on the flight deck the outside air temperature;
 - (ix) a rate of climb and descent indicator;
 - (x) such additional instruments or equipment as may be prescribed by the appropriate authority;
 - (xi) if operated by night, the lights specified in 4.2.2 (g) to (k) and 4.2.2.1; and
- (b) equipped with, or shall carry, a means of measuring and displaying the time in hours, minutes and seconds.

4.3 All helicopters on flights over water

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

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

4.3.2 Emergency equipment

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

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

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

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

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

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

4.5 All helicopters on high altitude flights

- 4.5.1 *Unpressurized helicopters.* Unpressurized helicopters intended to be operated at high altitudes shall carry equipment for storing and dispensing the oxygen supplies required in 2.10.1.
- 4.5.2 *Pressurized helicopters.* Pressurized helicopters intended to be operated at high altitudes shall carry emergency oxygen storage and dispensing equipment capable of storing and dispensing the oxygen supplies required in 2.10.2.
- 4.6 **All helicopters required to comply with the noise certification Standards.** All helicopters required to comply with the noise certification Standards shall carry a noise certificate as required in CAR Section 2 Series F part III and CAR 21.
- 4.7 **Flight recorders.** All helicopter shall be fitted with flight data recorder and cockpit voice recorder in accordance with CAR Section 2, Series 'I' Part V and VI, respectively.
- 4.8 **Emergency locator transmitter (ELT)**
- 4.8.1 All helicopters operating in performance Class 1 and 2 shall be equipped with at least one automatic ELT and, when operating on flights over water as described in 4.3.1 (a), with at least one automatic ELT and one ELT(S) in a raft or life jacket.
- 4.8.2 All helicopters operating in performance Class 3 shall be equipped with at least one automatic ELT.
- 4.8.3 ELT equipment carried to satisfy the requirements of 4.8.1 and 4.8.2 shall operate in accordance with the relevant provisions of Annex 10, Volume III.
- Note. - The judicious choice of numbers of ELTs, their type and placement on aircraft and associated floatable life support systems will ensure the greatest chance of ELT activation in the event of an accident for aircraft operating over water or land, including areas especially difficult for search and rescue. Placement of transmitter units is a vital factor in ensuring optimal crash and fire protection. The placement of the control and switching devices (activation monitors) of automatic fixed ELTs and their associated operational procedures will also take into consideration the need for rapid detection of inadvertent activation and convenient manual switching by crew members.*
- 4.9 **Helicopter required to be equipped with pressure altitude reporting transponder.**
- 4.9.1 All helicopters shall, unless exempted by the DGCA, be equipped with a pressure altitude reporting transponder in accordance with CAR Section 2 Series 'R' Part IV.

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

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

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

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

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

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

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

Note 2 – Guidance on establishing operational criteria is contained in Annex 6 Part III Attachment I.

4.12 **Electronic flight bags (EFBs)**

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

4.12.2 *EFB functions.*

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

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

- (b) establish the procedures for the use of, and training requirements for, the device and each EFB function; and
- (c) ensure that, in the event of an EFB failure, sufficient information is readily available to the flight crew for the flight to be conducted safely.

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

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

4.12.3 *EFB operational criteria*

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

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

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

5. HELICOPTER COMMUNICATION, NAVIGATION AND SURVEILLANCE EQUIPMENT

5.1 Communication equipment

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

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

- 5.1.2 When compliance with 5.1.1 requires that more than one communication equipment unit be provided, each shall be independent of the other or others to the extent that a failure in any one will not result in failure of any other.
- 5.1.3 A helicopter to be operated in accordance with the visual flight rules, but as a controlled flight shall, unless exempted by DGCA, be provided with radio communication equipment capable of conducting two-way communication at any time during flight with such aeronautical stations and on such frequencies as may be prescribed by the appropriate authority.
- 5.1.4 A helicopter to be operated on a flight to which the provisions of 4.3 or 4.4 apply shall, unless exempted by DGCA, be provided with radio communication equipment capable of conducting two-way communication at any time during flight with such aeronautical stations and on such frequencies as may be prescribed by the appropriate authority.
- 5.1.5 The radio communication equipment required in accordance with 5.1.1 to 5.1.4 should provide for communication on the aeronautical emergency frequency 121.5 MHz.
- 5.1.6 For operations where communication equipment is required to meet an RCP specification for *performance-based communication* (PBC), a helicopter shall, in addition to the requirements specified in 5.1.1 to 5.1.5:
- (a) be provided with communication equipment which will enable it to operate in accordance with the prescribed RCP specification(s); and
 - (b) have information relevant to the helicopter RCP specification capabilities listed in the flight manual or other helicopter documentation, approved by the DGCA/ State of Design; and
 - (c) where the helicopter is operated in accordance with a MEL, have information relevant to the helicopter RCP specification capabilities included in the MEL.
- Note. – Information on the performance-based communication and surveillance (PBCS) concept and guidance material on its implementation are contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).*
- 5.1.7 DGCA shall establish criteria for operations where an RCP specification for PBC has been prescribed.
- 5.1.8 In establishing criteria for operations where an RCP specification for PBC has been prescribed, DGCA requires that the operator/owner shall establish:
- (a) normal and abnormal procedures, including contingency procedures;
 - (b) flight crew qualification and proficiency requirements, in accordance with appropriate RCP specifications;

- (c) a training programme for relevant personnel consistent with the intended operations; and
- (d) appropriate maintenance procedures to ensure continued airworthiness, in accordance with appropriate RCP specifications.

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

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

5.2 Navigation equipment

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

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

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

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

Note – Guidance on helicopter documentation is contained in the Performance-based Navigation (PBN) Manual (Doc 9613).

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

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

- (a) normal and abnormal procedures including contingency procedures;
- (b) flight crew qualification and proficiency requirements in accordance with the appropriate navigation specifications;
- (c) training for relevant personnel consistent with the intended operations; and
- (d) appropriate maintenance procedures to ensure continued airworthiness in accordance with the appropriate navigation specifications.

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

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

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

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

5.2.6 The helicopter shall be sufficiently provided with navigation equipment to ensure that, in the event of the failure of one item of equipment at any stage of the flight, the remaining equipment will enable the helicopter to navigate in accordance with 5.2.1 and, where applicable, 5.2.2.

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

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

5.3 Surveillance equipment

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

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

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

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

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

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

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

- (a) normal and abnormal procedures, including contingency procedures;
- (b) flight crew qualification and proficiency requirements, in accordance with appropriate RSP specifications;
- (c) a training programme for relevant personnel consistent with the intended operations; and
- (d) appropriate maintenance procedures to ensure continued airworthiness, in accordance with appropriate RSP specifications.

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

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

6. HELICOPTER MAINTENANCE

Maintenance requirements are contained in CAR-145 / CAR-M / CAR 66, as applicable.

7. HELICOPTER FLIGHT CREW

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

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

7.3 Recurrent Checks

7.3.1 *Pilot's Proficiency Check (PPC).*

(a) Each flight crew member shall undergo PPC to demonstrate his/her competence in carrying out normal, abnormal and emergency procedures on each type of helicopter. PPCs shall be required to be carried out on each type and not each variant. When a flight crew operates different types of helicopters even with similar characteristics in terms of operating procedures, systems and handling, the PPC for each type shall be carried out separately without any credits for the other rated type. The period of validity of a PPC shall be 6 months. PPC shall be performed twice within any period of one year. In the case of renewal, the period of validity shall commence from the date of expiry of the previous validity provided that the check has been carried out within two months preceding the date of expiry. Any two such checks which are similar and which occur within a period of four consecutive months shall not alone satisfy this requirement.

(b) The PPC shall not be carried out in a flight with passengers on board, and the minimum duration shall be 0:45 hours, when flown on the helicopter it shall be carried out at a controlled airfield/heliport. PPC may be combined with IR Check, in which case the total duration shall not be less than 1:15 hours when flown on a helicopter and 2:00 hours when flown in a FFS Level B/C/D (FAA Designation), in such a case all mandatory exercises as mentioned in CA 44 and CA 45 shall be completed. In case the PPC expires then the same may be renewed by undergoing a fresh PPC, however the pilot is not to undertake any flying either as PIC or Co-pilot during such period of expiry, further recent experience requirements as per Para 7.6 may also apply, if a break in flying exists.

7.3.2 *Instrument Rating (IR) Check.*

- (a) Each flight crew member shall undergo IR checks, if applicable to the type of helicopter being flown, to demonstrate his/her competence in carrying out normal, abnormal and emergency procedures under instrument flying conditions. An IR Test for initial issue or IR Check for renewal of IR may be carried out on a helicopter or FFS Level B/C/D or FTD 6/7 (FAA Designation) specific to type simulator. When a flight crew operates several variants of the same type of helicopter, the IR check done on a specific type shall be valid for all its variants. When the flight crew operates different types of helicopters, the IR check for each type shall be carried out separately without any credits for each rated type. The IR Check shall not be carried out with passengers on board.
- (b) IR Check, when being carried out on a helicopter, shall be conducted by a TRE/TRI holding a valid IR, at an adequate aerodrome/heliport with appropriate landing aids. A minimum of two instrument approach procedures, preferably using two different navigational aids shall be carried out in an IR Check, and the minimum duration of the check shall be 1:00 hour. IR Check may be combined with PPC, in which case the total duration shall not be less than 1:15 hours when flown on a helicopter and 2:00 hours when flown in a FFS Level B/C/D (FAA Designation).
- (c) The instrument rating shall be valid for a period of twelve months from the date of the satisfactory completion of the instrument rating test. In the case of renewal, the period of validity of the rating shall be for a period of twelve months which shall commence from the date following the date of expiry of the previous validity subject to the condition that the check for instrument rating has been conducted within two months preceding the date of expiry, and all other requirements for renewal are met. In cases other than those referred above, the validity of renewal of the rating shall commence from the date of the instrument rating test.

7.3.3 *Night Flying Check and Night Route Check.* When passengers are intended to be carried at night, each flight crew member holding a CPL(H) shall have carried out at least five take offs and landings by night, and one route check by night, in the last six months immediately preceding the date of intended flight, to the satisfaction of a TRE. Night Flying Checks and Night Route Checks are required to be carried out separately on each type of helicopter flown. A night route check shall comprise a route/triangular nav of minimum 100 Nautical miles, and a route check flown by night shall be considered to meet the requirements of day route check, however not vice versa. A Night Flying Check may be carried out in a FFS Level B/C/D (FAA Designation) specifically approved for the same.

7.4 Recurrent Training

7.4.1 *Flying Recurrent Training.* All pilots shall undergo recurrent training at least once in two years, on a FFS Level B/C/D or FTD 6/7 (FAA Designation). Instrument Flying (only for IR pilots) and the practice of those parts of

emergencies such as touchdowns in engine failure, hydraulic failure, multiple system failures, tail rotor failure/control failure, loss of tail rotor effectiveness (LTE), Vortex Ring etc which cannot be practiced in actual flying shall be carried out. All major failures of systems and associated procedures shall be covered in a period of two years.

- (a) The minimum duration of this training shall be 8:00 hrs for IR pilots. This breakdown shall be 4:00 + 4:00 hrs (IF + Emergencies) respectively.
- (b) The minimum duration of this training shall be 4:00 hrs for non IR pilots for practice of emergencies. For pilots flying SE helicopters this duration shall be 3:00 hrs.
- (c) In case a specific to type FFS Level B/C/D or FTD 6/7 (FAA Designation) is not available anywhere in the country or abroad for a particular type, recurrent training may be flown on the helicopter for the same duration as specified in Sub Para (a) and (b) above, after prior approval of DGCA.

7.4.2 *Ground Recurrent Training.* The training placed at Module I and II may be undertaken with a type trained TRE/TRI/Check Pilot/Chief Pilot. Training placed at Module II may be undertaken with a TRE/TRI/Check Pilot/SEP Instructor/GTO. Training placed at Module III and V shall be undertaken at a GTO. Training placed at Module IV may be undertaken with a DGCA approved CRM Instructor/GTO.

Module	Training	Periodicity	Duration	Topics to be covered
I	Technical and Performance Refresher	Once a year	08 Hours	Rotorcraft Flight Manual, Helicopter Systems and performance, Type emergencies and recovery actions, and any changes to Operations Manual / Regulations.
II	SEP Training	Once a year	02 Hours	Safety and Emergency Procedures Training on the helicopter shall include : (a) Actual donning of life jackets/breathing equipment, where fitted. (b) Actual handling of fire extinguishers. (c) Location and use of all emergency and safety equipment. (d) Instructions on the location and use of all types of exits. (e) Once every three years actual operation of fire extinguishers and emergency exits, actual fire-fighting using eqpt representative of that carried in the helicopter on an actual or simulated fire (except with Halon extinguishers), shall be practiced by all crew.
III	Specific Ground Training	Once a year	04 Hours	Adverse Weather, Effects of Monsoons, Disorientation, Situational Awareness & CFIT.
IV	CRM Training	Once a year	02 Hours	As applicable
V	AVSEC Training	Once in two years		As Applicable

	DGR Training	Once in two years	As Applicable
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7.5 Special VFR Training and Qualifications

7.5.1 *Experience.* The pilot authorised to operate Special VFR flight shall have a minimum of 500 hours on helicopters out of which minimum 100 hours should be as PIC. When operating with two pilots under Special VFR, only the PIC needs to be Special VFR qualified.

7.5.2 *Ground Training and Test.*

7.5.3 *Ground Training.* Ground Training covering the under mentioned topics shall be undertaken prior to undergoing the flying training/check. This ground training is required to be undertaken only once, prior to initial Special VFR clearance.

- (a) Use of nav aids.
- (b) Use of landing aids.
- (c) Spatial disorientation.
- (d) CFIT, Situational awareness.
- (e) Adverse Weather Phenomena.
- (f) ATS in controlled airspace.

7.5.4 *Ground Test.* The ground training shall be followed by a written test; minimum pass percentage marks for the written test shall be 70%.

7.5.5 *Flying Training.* The flying training will cover the Departure and Arrival procedures in controlled airspace. The duration of the flying training shall not be less than 1:00 hr and shall be conducted only on a helicopter and in a control zone to cover all aspects of flying training.

7.5.6 *Authorisation for Training.* Ground training and written test shall be conducted by a DGCA approved GTO/ATO. The Special VFR flying training shall be conducted by a DGCA approved TRI/TRE. On successful completion of Ground Training and Flying Training, TRI/TRE shall certify in the pilot's logbook that he is fit to operate Special VFR flights.

7.5.7 *Validity.* The one-time authorisation to operate Special VFR flights shall be valid from the date of the flying training conducted by the TRI/TRE, thereafter no yearly ground/flying recurrent training is required.

7.5.8 *Privileges.* Pilots authorised to operate Special VFR flights shall remain clear of clouds and in sight of the surface.

Note : Pilots who have held Instrument Rating or TRE / TRI or Flight Instructor Rating / Assistant Flight Instructor Rating, are not required to undergo the ground / flying training to operate Special VFR. This authorisation shall be considered valid for all types and variants of helicopters that may be endorsed on the pilot's licence.

7.6 Recent Experience Requirements.

Break in Flying	Ground Refresher	Flying training with TRE/TRI		Route Check and/or IR Check	Before flying SPO	
		Helicopter B/C/D or FTD Designation)	OR FFS Level 6/7 (FAA Designation)		PIC with co-pilot	As co-pilot
Day Flying – Helicopters with A UW <= 5700 kg						
60 to 89 days	Applicable only to pilots with < 1000 hrs PIC on helicopters			-	-	0:45
90 to 179 days	2:00	3 TOL as PIC with an experienced copilot	1 session Total 0:45 hr	-	-	-
180 days to less than One year	3:00	PPC (3TOL) 0:45	2 sessions Total 1:30	-	1:00	-
1 year to less than 2 years	4:00	Dual 0:45 and Skill Test (3TOL) 0:45	3 sessions Total 2:30	If due	2:00	-
2 years and more	5:00	Dual 1:00 and Skill Test (3TOL) 0:45	4 sessions Total 3:00	Route Check 1:00, IR Check if due	4:00	-
Day Flying – Helicopters with A UW > 5700 kg						
60 to 89 days	Applicable only to pilots with < 1000 hrs total flying			-	-	0:45
90 to 179 days	2:00	3 TOL as PIC with an experienced co-pilot	1 session Total 0:45	-	-	-
180 days to less than One year	3:00	PPC (3TOL) 0:45	2 sessions Total 1:30	1 Route Check 1:00, IR Check if due	-	-

1 year to less than 2 years	4:00	Dual 0:45 and Skill Test (3TOL) 0:45	3 sessions Total 2:30	2 Route Checks 2:00, IR Check if due	-	-
2 years and more	5:00	Dual 1:00 and Skill Test (3TOL) 0:45	4 sessions Total 3:00	3 Route Checks 3:00, IR Check 1:00	-	-
Night Flying – All Helicopters						
180 days to less than 1 year	-	PPC (3TOL) 0:45	1 session Total 0:45	-	-	-
1 year to less than 2 years	1:30	Dual 0:45 hr and Skill Test (3TOL) 0:45 hr	2 sessions Total 1:30	-	-	1:00
2 years and more	2:00	Dual 1:00 hr and Skill Test (5TOL) 1:00 hr	2 sessions Total 2:00	-	-	2:00

7.7 In addition, the provisions of CAR Section 8 Series H Part II shall be applicable for the following :-

7.7.1 Pilot qualifications and recurrent training requirements for special roles i.e. Hill / Mountain Flying, Offshore Flying, ELO and HHO.

7.7.2 Extension of aircraft rating.

7.7.3 Requirements for flying more than one type of helicopter.

7.7.4 Exercising privileges of open rating.

7.7.5 Single pilot operations.

7.7.6 All relevant flying assessment forms given in CAR Section 8 Series H Part II.

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

(BS Bhullar)
Director General of Civil Aviation

APPENDIX A

HELICOPTER OPERATING MINIMA

1. **VFR and Special VFR.**
 - 1.1 *VFR Minima.* An operator shall ensure that VFR flights are conducted in accordance with the minima specified in CAR Section 9 Series C Part I.
 - 1.2 Special VFR Operations
 - 1.2.1 In limited visibility conditions, flights under Visual Flight Rules cannot be operated in controlled 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 departure 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.
 - 1.2.2 Detailed instructions on flight crew qualifications and training for undertaking Special VFR operations are contained in CAR Section 8 Series H Part II.
 - 1.3 Authorisation of Special VFR Flights
 - 1.3.1 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:
 - 1.3.2 The helicopter is fitted with the minimum instruments stipulated in Para 1.6 of this Appendix.
 - 1.3.3 In case of Performance Class 1 and 2 helicopters, ATC may authorise Special VFR flights when the ground visibility is not less than 1000m.
 - 1.3.4 For Performance Class 3 helicopters, ATC may authorise Special VFR flights when the ground visibility is not less than 1500m.
 - 1.4 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.
 - 1.5 ATC has discretion to ask Pilot-in-Command, to confirm the compliance of the requirements of this CAR, before authorising Special VFR flight.

1.6 *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:

1.6.1 Artificial horizon

1.6.2 Heading Indicator (Direction Gyro)

1.6.3 Rate of Climb Indicator

1.6.4 VOR or ADF or GPS

Note 1 — 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.

IFR OPERATIONS

2. Take-Off Minima.

2.1 General

2.1.1 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.

2.1.2 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.

2.1.3 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.

2.1.4 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.

2.2 Visual reference

2.2.1 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.

2.2.2 For night operations ground lighting must be available to illuminate the FATO/ runway and any obstacles, unless otherwise agreed by the DGCA.

2.3 Required RVR / Visibility

2.3.1 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	550 m
Runway edge/ FATO lighting, centre line marking and RVR information	550 m
Offshore Helideck	RVR/Visibility
Two pilot operations	1000 m

Note 1. The PIC must establish that the take-off flight path is free of obstacles.

Note 2. The PIC should have gained experience of 100 hours in the relevant helicopter type before being authorized to use minima up to the limiting RVR / visibility. Till such time Restricted Operating Minima will be an additional 400 m to the applicable Visibility/ RVR.

Note 3. Restricted Operating Minima shall be based on additives applied to the Normal Operating Minima as:-

Restricted Operating Minima = Normal OM Visibility/ RVR + 400 m.

2.4 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.

2.5 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.

2.6 The table below, for converting reported meteorological visibility to RVR, must not be used for calculating take-off minima.

3. Non-Precision Approach

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

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

3.2.1 The OCH/ OCL for the category of helicopter; or

3.2.2 The system minimum.

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:

3.3.1 Elements of the approach light system;

3.3.2 The threshold;

3.3.3 The threshold markings;

- 3.3.4 The threshold lights;
 - 3.3.5 The threshold identification lights;
 - 3.3.6 The visual glide slope indicator;
 - 3.3.7 The touchdown zone or touchdown zone markings;
 - 3.3.8 The touchdown zone lights;
 - 3.3.9 FATO/Runway edge lights; or
 - 3.3.10 Other visual references accepted by the DGCA.
- 3.4 Required RVR.
- 3.4.1 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 and above	1 000 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).

- 3.4.2 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.
- 3.4.3 Night operations. For night operations, ground lighting must be available to illuminate the FATO/ runway and any obstacles, unless otherwise agreed by the DGCA.

4. Precision Approach - Category I Operations

- 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 550 m.
- 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:
- 4.2.1 the minimum decision height specified in the Rotorcraft Flight Manual (RFM) if stated;
- 4.2.2 the minimum height to which the precision approach aid can be used without the required visual reference;
- 4.2.3 the OCH/ OCL for the category of helicopter; or
- 4.2.4 200 ft.
- 4.3 *Visual Reference.* A pilot may not continue an approach below the Category I decision height, determined in accordance with Para 4.2 above, unless at least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:
- 4.3.1 Elements of the approach light system;
- 4.3.2 The threshold;

- 4.3.3 The threshold markings;
- 4.3.4 The threshold lights;
- 4.3.5 The threshold identification lights;
- 4.3.6 The visual glide slope indicator;
- 4.3.7 The touchdown zone or touchdown zone markings;
- 4.3.8 The touchdown zone lights; or
- 4.3.9 FATO/ runway edge lights.
- 4.4 Required RVR.
- 4.4.1 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	550 m	600 m	700 m	1 000 m
201-250 ft	600 m	650 m	750 m	1 000 m
251 -300 ft	650 m	700 m	800 m	1 000 m
301 ft & above	750 m	800 m	900 m	1 000 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 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).

4.5 **Restricted Aerodrome Operating Minima.** Restricted AOM shall be based on additives applied to the Normal AOM as below:-

(a) Normal AOM DA(H) / MDA(H) + 100 ft, and

(b) Normal AOM Visibility/RVR + 400 m.

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

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

5. Circling Approach

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.

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.

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

6. Visual Approach

6.1 An operator shall not use an RVR of less than 1000 m for a visual approach.

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.

6.3 When converting meteorological visibility to RVR in all other circumstances than those in Para 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

APPENDIX B

HELICOPTER PERFORMANCE

1. **Definitions.**
 - 1.1 Category A. With respect to helicopters, means a multi engine helicopter designed with specified engine and system isolation features, and 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.
 - 1.2 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.
 - 1.3 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.
 - 1.4 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.
 - 1.5 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.
 - 1.6 Helicopters operating in performance Classes 1 and 2 should be certificated in Category A.
 - 1.7 Helicopters operating in performance Class 3 should be certificated in either Category A or Category B (or equivalent).
2. **Operating Limitations.**
 - 2.1 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.

- 2.2 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.
- 2.3 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. (An exception is granted for arrivals and departures to/ from airfields/ helipads in case of single engine helicopters).
- 2.4 Exception. HEMS operations may be undertaken in Performance Class 1 or 2 over congested hostile environment.
3. **Significant performance factors.** To determine the performance of the helicopter, account should be taken of at least the following factors:
- (a) Mass of the helicopter;
 - (b) Elevation or pressure altitude and temperature; and
 - (c) 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.
4. **Operating Conditions.**
- 4.1 For helicopters operating in Performance Class 2 or 3, in any flight phase, where an engine failure may cause the helicopter to force-land:
- 4.1.1 a minimum visibility should be defined by the operator, taking into account the characteristics of the helicopter, but should not be less than 1000 m for Performance Class 1 & 2 and 1500 m for Performance Class 3 helicopters; and
 - 4.1.2 the operator should verify that the surface below the intended flight path permits the pilot to execute a safe forced landing.
- 4.2 Performance Class 3 operations are not to be performed:
- 4.2.1 out of the sight of the surface; or
 - 4.2.2 at night; or

4.2.3 when the cloud ceiling is less than 180 m (600 ft); or

4.2.4 when operating from elevated heliports or helidecks.

5. Obstacle Accountability Area

5.1 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:

5.1.1 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) 0.25 DR for VFR night operations

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

(a) 0.10 DR for IFR operations with accurate course guidance

(b) 0.20 DR for IFR operations with standard course guidance

(c) 0.40 DR for IFR operations without course guidance

Note 1 - 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;

Note 2 - Standard course guidance includes ADF and VOR guidance. Accurate course guidance include ILS, MLS or other course guidance, providing an equivalent navigational accuracy.

5.1.3 For operations with initial take-off conducted visually and converted to IFR/IMC at a transition point, the criteria required in Para 5.1.1 *ibid* apply up to the transition point and the criteria required in Para 5.1.2 *ibid* apply after the transition point:

5.2 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:

- 5.2.1 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 plus 0.25 times D or 3 m, whichever is greater), plus
- 5.2.2 0.10 distance travelled from the back edge of the FATO for VFR day operations;
- 5.2.3 0.20 distance travelled from the back edge of the FATO for VFR night operations.

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

- 5.3 Obstacles may be disregarded if they are situated beyond:
 - (a) 7 R for day operations if it is assured that navigational accuracy can be achieved by reference to suitable visual cues during the climb;
 - (b) 10 R for night operations if it is assured that navigational accuracy can be achieved by reference to suitable visual cues during the climb;
 - (c) 300 m if navigational accuracy can be achieved by appropriate navigation aids; and
 - (d) 900 m in the other cases.
- 5.4 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.
- 5.5 When considering the missed approach flight path, the divergence of the obstacle accountability area should only apply after the end of the take-off distance available.
- 6. **Source of performance data.** An operator should ensure that the approved performance data contained in the helicopter flight manual is used to determine compliance with obstacle clearance limits, supplemented as necessary with other data acceptable to the DGCA.
- 7. **Operating area considerations.** For operations in performance Class 1, the dimensions of the FATO should be at least equal to the dimensions specified in the helicopter flight manual.
- 8. **Operations in Performance Class 1**
 - 8.1 Take-off

- 8.1.1 The take-off mass of the helicopter should not exceed the maximum take-off mass specified in the 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 (1 000 ft) above the level of the heliport with the critical engine inoperative and the remaining engines operating at an appropriate power rating, taking into account the parameters specified in Para 4 (Figure A-1).
- 8.1.2 Rejected take-off. The take-off mass should be such that the rejected take-off distance required does not exceed the rejected take-off distance available.
- 8.1.3 Take-off distance. The take-off mass should be such that the take-off distance required does not exceed the take-off distance available.

Note 1.— As an alternative, the requirement above may be disregarded provided that the helicopter with the critical engine failure recognized at TDP can, when continuing the take-off, clear all obstacles from the end of the takeoff distance available to the end of the take-off distance required by a vertical margin of not less than 10.7 m (35 ft) (Figure A-2).

Note 2.— For elevated heliports, the airworthiness code provides appropriate clearance from the elevated heliport edge (Figure A-3).

- 8.1.4 Backup procedures (or procedures with lateral transition). An operator should ensure that, with the critical engine inoperative, all obstacles below the backup flight path (the lateral flight path) are cleared by an adequate margin. Only the obstacles specified in Para 5.2 *ibid* should be considered.
- 8.2 Take-off flight path. From the end of the take-off distance required with the critical engine inoperative:
- 8.2.1 The take-off mass should be such that the climb path provides a vertical clearance of not less than 10.7 m (35 ft) for VFR operations and 10.7 m (35 ft) plus 0.01 DR for IFR operations above all obstacles located in the climb path. Only obstacles as specified in Para 5 *ibid* should be considered.
- 8.2.2 Where a change of direction of more than 15 degrees is made, obstacle clearance requirements should be increased by 5 m (15 ft) from the point at which the turn is initiated. This turn should not be initiated before reaching a height of 60 m (200 ft) above the take-off surface, unless permitted as part of an approved procedure in the flight manual.
- 8.3 En route. The take-off mass is such that it is possible, in case of the critical engine failure occurring at any point of the flight path, to continue the flight to an appropriate landing site and achieve the minimum flight altitudes for the route to be flown.
- 8.4 Approach, landing and balked landing

8.4.1 The estimated landing mass at the destination or alternate should be such that:

- (a) it does not exceed the maximum landing mass specified in the 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 (1 000 ft) above the level of the heliport with the critical engine inoperative and the remaining engines operating at an appropriate power rating, taking into account the parameters specified in Para 3 *ibid*;
- (b) the landing distance required does not exceed the landing distance available unless the helicopter, with the critical engine failure recognized at LDP can, when landing, clear all obstacles in the approach path;
- (c) in case of the critical engine failure occurring at any point after the LDP, it is possible to land and stop within the FATO; and
- (d) in the event of the critical engine failure being recognized at the LDP or at any point before the LDP, it is possible either to land and stop within the FATO or to overshoot, meeting the conditions of Paras 8.2.1 and 8.2.2 *ibid*.

Note.— For elevated heliports, the airworthiness code provides appropriate clearance from the elevated heliport edge.

9. Operations in performance Class 2

9.1 Take-off

The mass of the helicopter at take-off should not exceed the maximum take-off mass specified in the flight manual for the procedures to be used and to achieve a rate of climb of 150 ft/min at 300 m (1 000 ft) above the level of the heliport with the critical engine inoperative and the remaining engines operating at an appropriate power rating, taking into account the parameters specified in Para 3.

9.2 Take-off flight path

From DPATO or, as an alternative, no later than 60 m (200 ft) above the take-off surface with the critical engine inoperative, the conditions of Paras 8.2.1 and 8.2.2 *ibid* should be met.

9.3 En-route

The requirements of 8.3 should be met.

9.4 Approach, landing and balked landing

9.4.1 The estimated landing mass at the destination or alternate should be such that:

- (a) it does not exceed the maximum landing mass specified in the flight manual for a rate of climb of 150 ft/min at 300 m (1 000 ft) above the level of the heliport with the critical engine inoperative and the remaining engines operating at an appropriate power rating, taking into account the parameters specified in Para 3;
- (b) it is possible, in case of the critical engine failure occurring at or before the DPBL, either to perform a safe forced landing or to overshoot, meeting the requirements of Paras 8.2.1 and 8.2.2 *ibid*.

Note - Only obstacles as specified in Para 5 should be considered.

10. Operations in performance Class 3

10.1 Take-off

The mass of the helicopter at take-off should not exceed the maximum take-off mass specified in the flight manual for a hover in ground effect with all engines operating at take-off power, taking into account the parameters specified in Para 3. If conditions are such that a hover in ground effect is not likely to be established, the take-off mass should not exceed the maximum mass specified for a hover out of ground effect with all engines operating at take-off power, taking into account the parameters specified in Para 3.

10.2 Initial climb

The take-off mass should be such that the climb path provides adequate vertical clearance above all obstacles located along the climb path, all engines operating.

10.3 En-route

The take-off mass is such that it is possible to achieve the minimum flight altitudes for the route to be flown, all engines operating.

10.4 Approach and landing

The estimated landing mass at the destination or alternate should be such that:

- (a) it does not exceed the maximum landing mass specified in the flight manual for a hover in ground effect with all engines operating at take-off power, taking into account the parameters specified in Para 3. If conditions are such that a hover in ground effect is not likely to be

established, the take-off mass should not exceed the maximum mass specified for a hover out of ground effect with all engines operating at take-off power, taking into account the parameters specified in Para 3;

- (b) it is possible to perform a balked landing, all engines operating, at any point of the flight path and clear all obstacles by an adequate vertical interval.

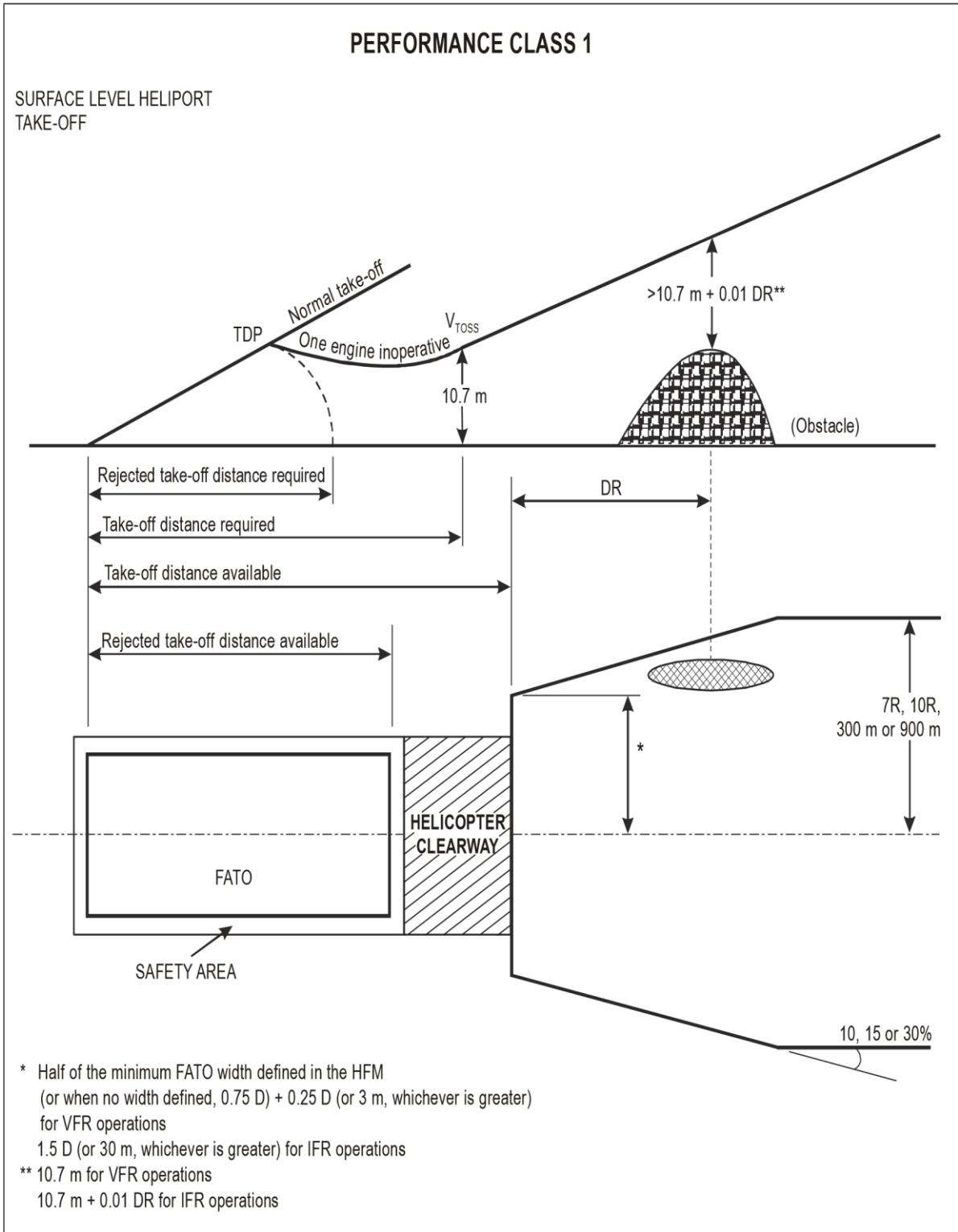


Figure A-1

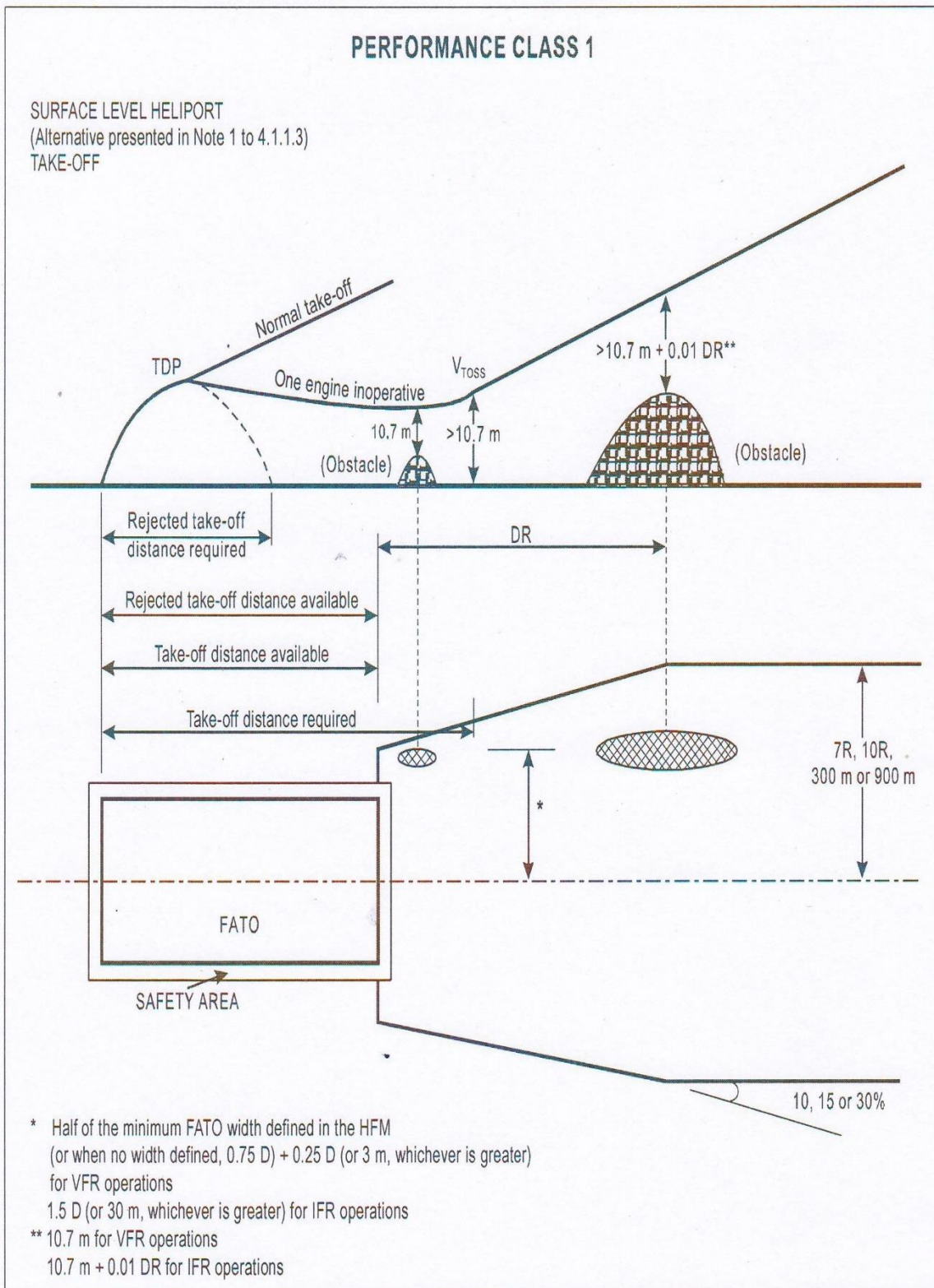


Figure A-2

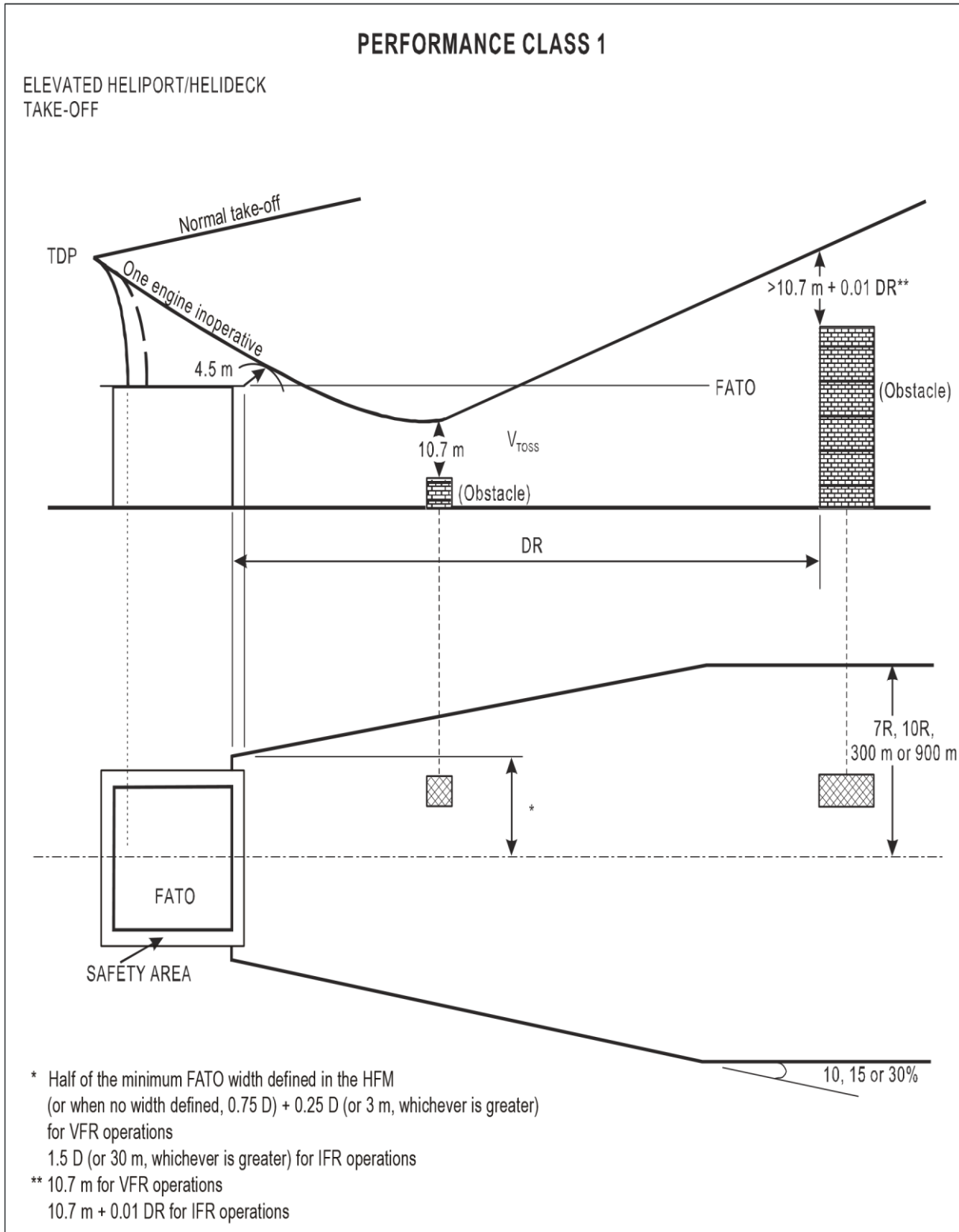


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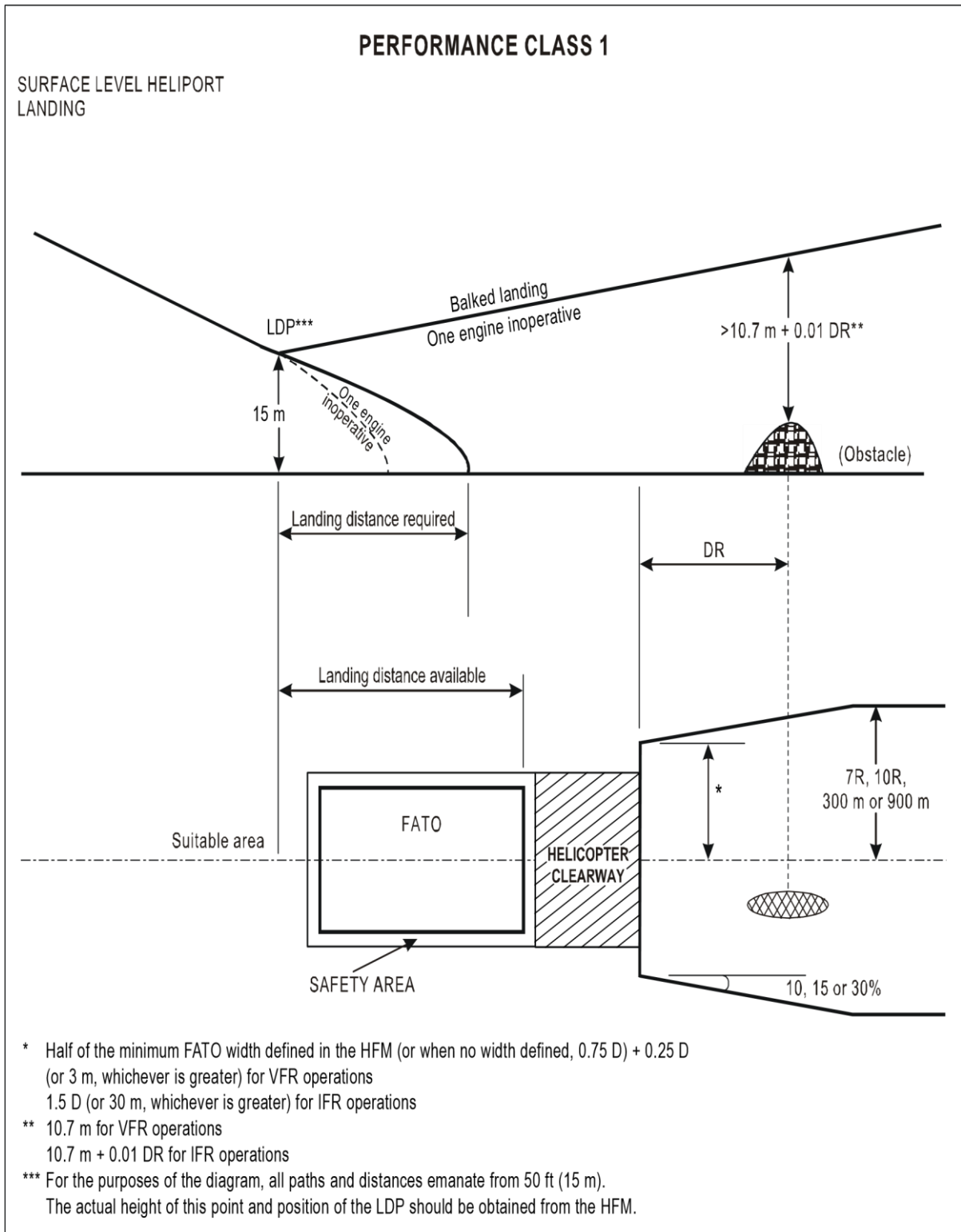


Figure A-4

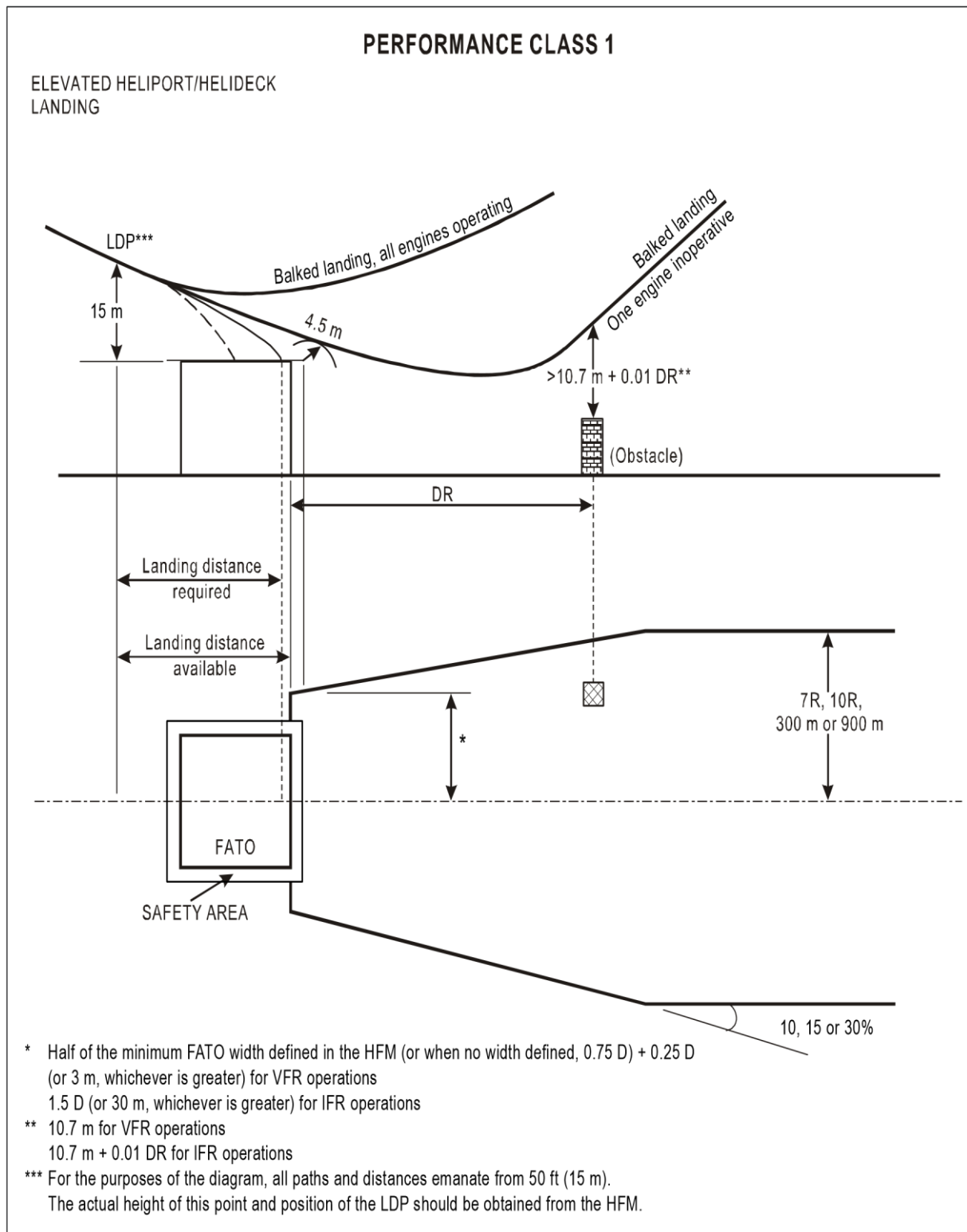


Figure A-5

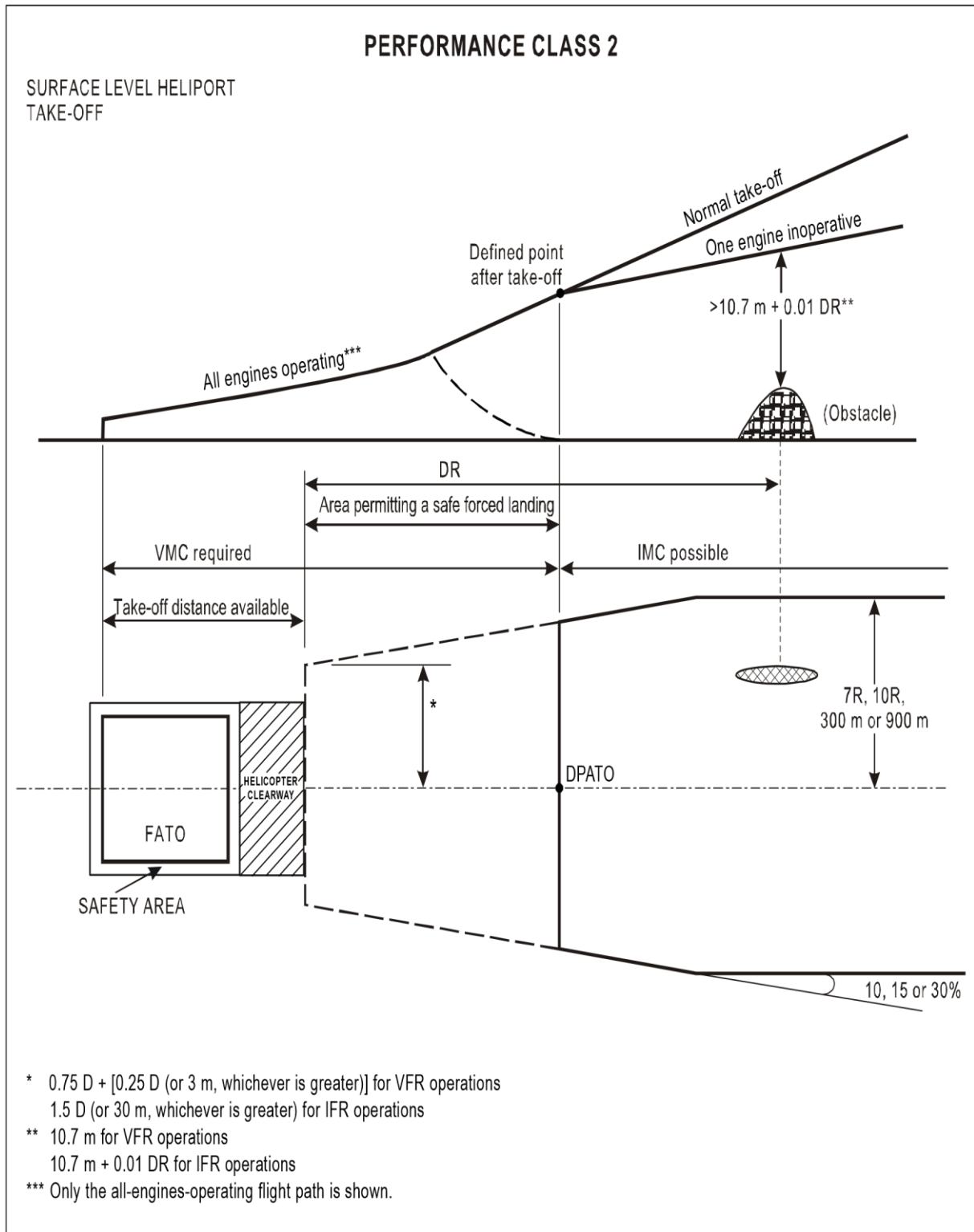


Figure A-6

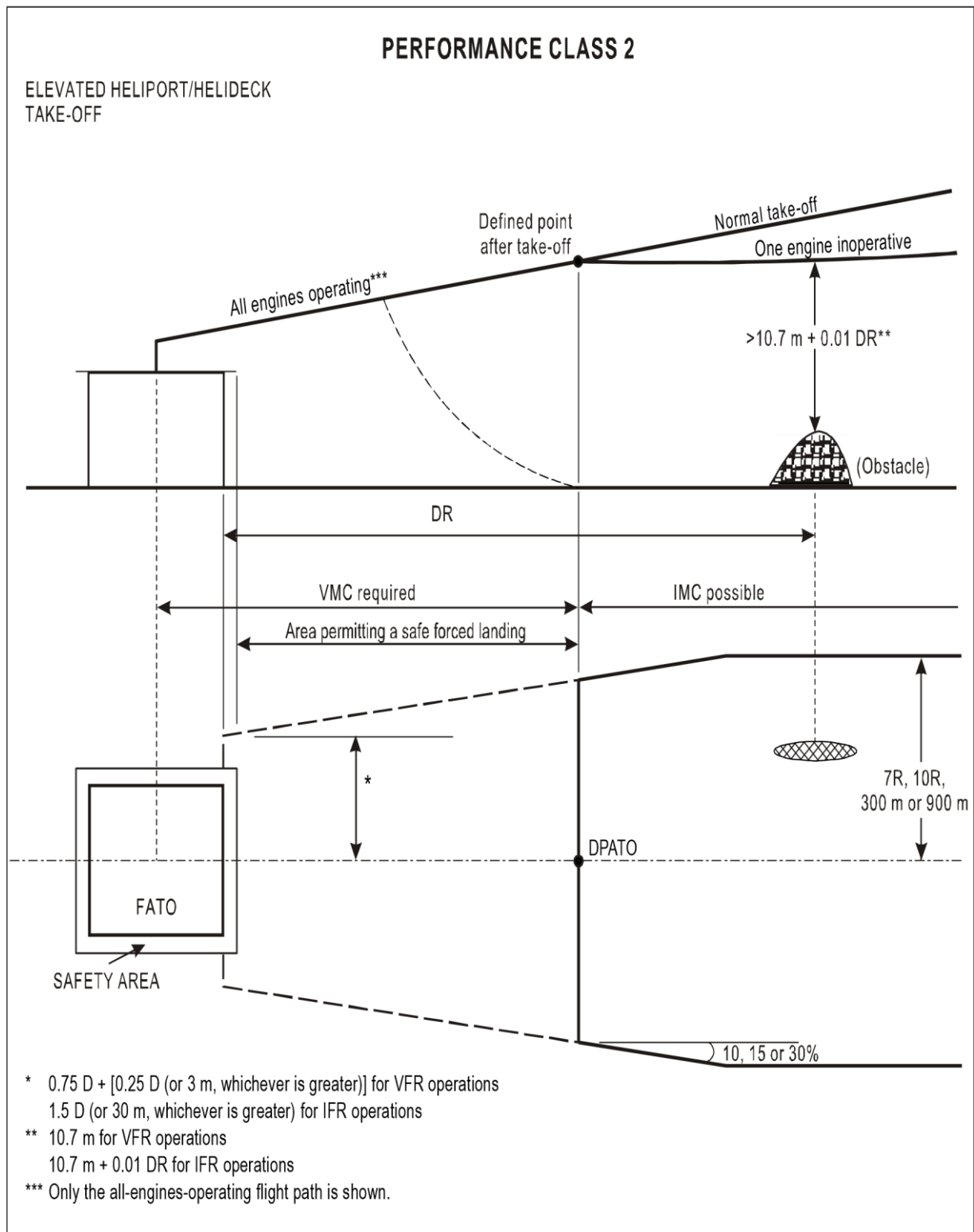


Figure A-7

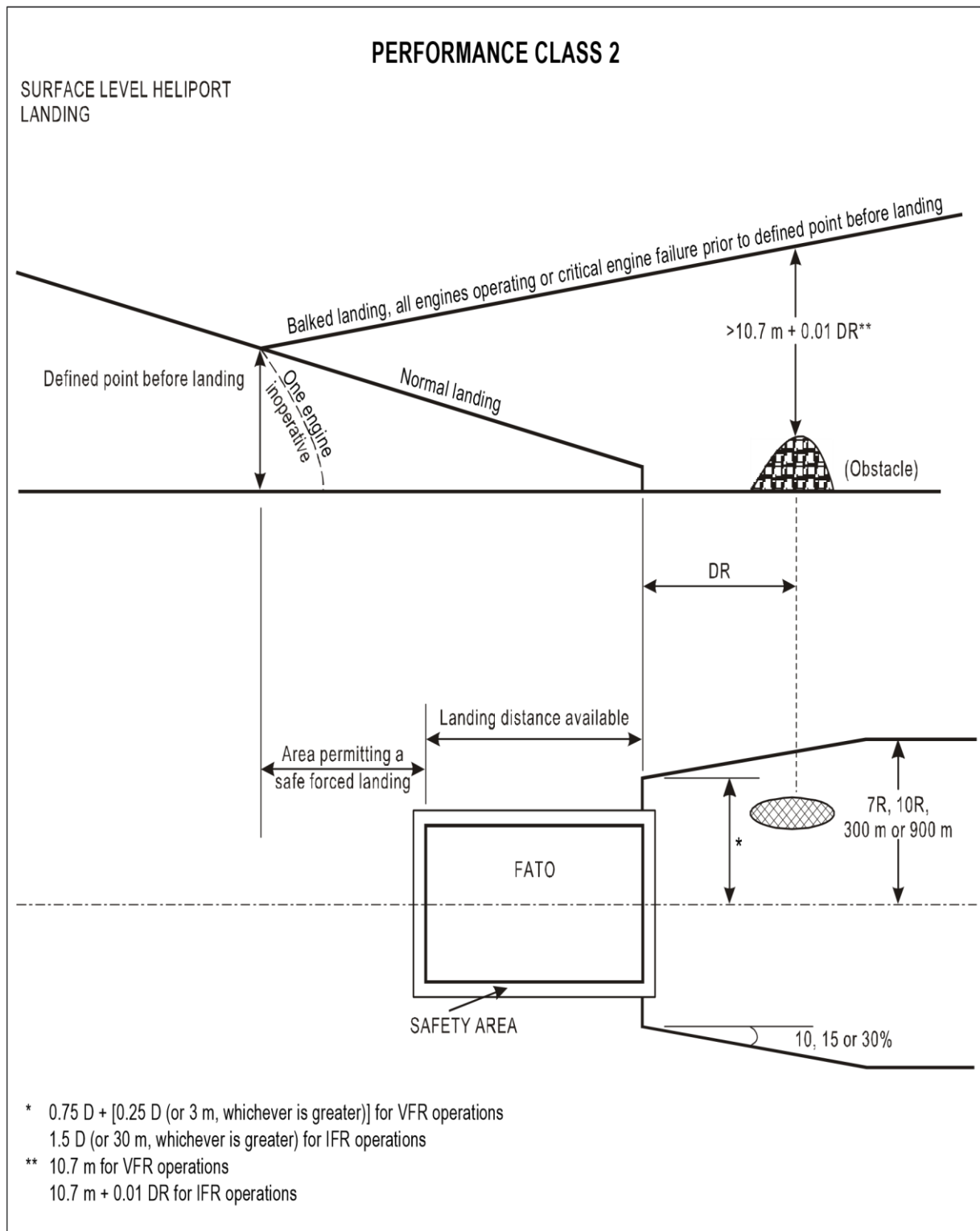


Figure A-8

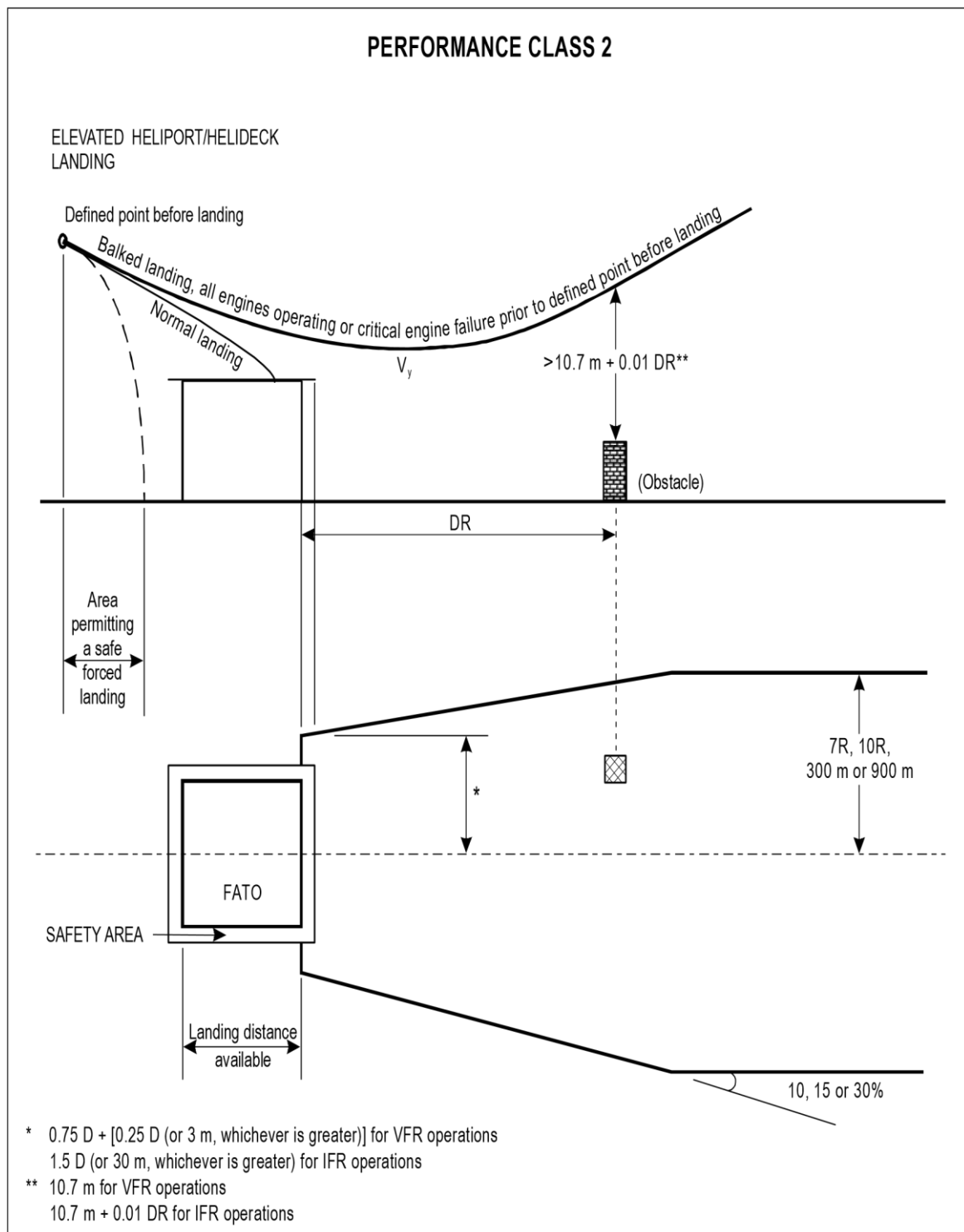


Figure A-9