CHAPTER 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 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 FOR is intended to denote the use, at the point of departure, of information available to the pilot-in-command either through official information published by the aeronautical information services or readily obtainable from other sources.

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 State of Registry 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 State of the Aerodrome, except when specifically approved by that State.

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

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

Note 1.— Operational credit includes:

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

b) reducing or satisfying the visibility requirements; or

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

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

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

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

2.3 Briefing

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

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

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

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 installed in the helicopter are appropriate, taking into account the expected flight conditions;
c) any necessary maintenance has been performed in accordance with Chapter 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; and
f) the helicopter operating limitations contained in the flight manual, or its equivalent, will not be exceeded.

2.5 Weather reports and forecasts

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

Note.— The requirements for flight plans are contained in ICAO Annex 2 and the PANS-ATM (Doc 4444).

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 available current meteorological reports, or a combination of current reports and forecasts, indicate that the meteorological conditions along the route, or that part of the route to be flown under VFR, will, at the appropriate time, be such as to render compliance with these rules possible.

2.6.2 Flight in accordance IFR

2.6.2.1 *When an alternate is required.* A flight to be conducted in accordance with IFR 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.

Note.— It is the practice in some States to declare, for flight planning purposes, higher minima for a heliport when nominated as an alternate than for the same heliport when planned as that of intended landing.

2.6.2.2 *When no alternate is required.* A flight to be conducted in accordance with IFR 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 actualtime of departure to two hours after the estimated time of arrival, whichever is the shorter period:

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

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

2.6.3 Heliport operating minima

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

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

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

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

2.6.4 Flight in icing conditions

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

2.7 Alternate heliports

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

a) the weather conditions in 2.6.2.2 prevail; or
b) 1) the heliport of intended landing is isolated and no suitable alternate is available; and

2) an instrument approach procedure is prescribed for the isolated heliport of intended landing; and
3) a point of no return (PNR) is determined in case of an offshore destination.

2.7.2 Suitable offshore alternates may be specified subject to the following:

a) the offshore alternates shall be used only after passing a PNR. Prior to a PNR, onshore 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 helpdesks as alternate heliports.

2.7.3 RESERVED

2.8 Fuel and oil supply

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 sufficient to allow the helicopter:

a) to fly to the heliport to which the flight is planned;
b) to fly thereafter for a period of 20 minutes at best-range speed; and
c) to have an additional amount of fuel, sufficient to provide for the increased consumption on the occurrence of potential contingencies, as determined by the State and specified in the State regulations governing general aviation.

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 sufficient to allow the helicopter:

2.8.3.1 When no alternate is required, in terms of 2.6.2.2, to fly to the heliport to which the flight is planned, and thereafter:

a) to fly 30 minutes at holding speed at 450 m (1 500 ft) above the destination heliport under standard temperature conditions and approach and land; and

b) to have an additional amount of fuel, sufficient 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 to which the flight is planned, and thereafter:

a) to fly to the alternate specified in the flight plan; and then
b) to fly for 30 minutes at holding speed at 450 m (1 500 ft) above the alternate under standard temperature conditions, and approach and land; and
c) to have an additional amount of fuel, sufficient to provide for the increased consumption on the occurrence of potential contingencies.

2.8.3.3 When no suitable alternate is available (i.e. the heliport of intended landing is isolated and no suitable alternates available), to fly to the heliport to which the flight is planned and thereafter for a period as specified by the DG, CAAN.

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 2.8 precludes amendment of a flight plan in flight in order to replan the flight to another heliport, provided that the requirements of 2.8 can be complied with from the point where the flight has been replanned.

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.
The pilot-in-command landing with less than required final reserve fuel shall submit written within 48h Hrs of such flight.

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 MAYDAYMAYDAY 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 MAYDAYMAYDAY 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 over flown (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 as required in ICAO Annex 10, Volume II, 5.3.2.1.1, b) 3.

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	Metres	Feet
700 hPa	*3 000*	*10 000*
620 hPa	*4 000*	*13 000*

2.10.1 A flight to be operated at altitudes at which the atmospheric pressure in personnel compartments will be less than700 hPa shall not be commenced unless sufficient stored breathing oxygen is carried to supply:

a) all crew members and 10 per cent of the passengers for any period in excess of 30 minutes that the pressure in compartments occupied by them will be between 700 hPa and 620 hPa; for single pilot operation above 10,000ft AMSL.

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 2.10.1 or 2.10.2.

2.12 In-flight emergency instruction

In an emergency during flight, the pilot-in-command shall ensure thanst 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 shouldbe 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 duty shall remain at their stations except when their absence is necessary for the performance of duties in connection with the operation of the helicopter, or for physiological needs.

2.16.3 Seat belts

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

2.16.4 Safety harness- RESERVED

2.17 Instrument flight procedures

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

2.17.2 All helicopters operated in accordance with IFR shall comply with the instrument approach procedures approved by the State in which the heliport is located, or by the State which is responsible for the heliport when located outside the territory of any State.

Note 1.— See Section II, Chapter 2, 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

A helicopter rotor shall not be turned under power for the purpose of flight without a qualified pilot at the controls.

2.19Refuelling with passengers on board or rotors turning

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

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

Note 1.— Provisions concerning aircraft refueling are contained in Annex 14, Volume I, and guidance on safe refueling practices is contained in the Airport Services Manual *(Doc 9137), Parts 1 and 8.*

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

2.20 Over-water flights

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

2.21 Operators to ensure that crew comply with interception orders

2.21.1 An Operator shall ensure that their crew receive appropriate trainings on and comply with Interception Orders from other States.

2.21.2 Attachment 1 A contains the instructions that crew of an intercepted aircraft must follow when complying with Interception Orders from Interceptor aircraft of other States.