

# Advisory Circular

## GUIDANCE ON OPERATIONAL PROCEDURES FOR ANR-135 OPERATIONS

GENERAL.....	1
PURPOSE .....	1
APPLICABILITY .....	2
RELATED REGULATIONS .....	2
RELATED ADVISORY CIRCULARS .....	2
CANCELLATION.....	2
EFFECTIVE DATE.....	2
OTHER REFERENCES .....	2
GUIDANCE 135REG21 GUIDANCE FOR REGULATION 21 OF ANR-135 – USE OF OPERATIONS MANUAL.....	3
GUIDANCE 135REG22 GUIDANCE FOR REGULATION 22 OF ANR-135 – OPERATIONAL CONTROL .....	3
GUIDANCE 135REG28 GUIDANCE FOR REGULATION 28 OF ANR-135 – FLIGHT PREPARATION .....	5
GUIDANCE 135REG34 GUIDANCE FOR REGULATION 34 OF ANR-135 – OPERATING INTO AREAS WITH KNOWN OR FORECASTED VOLCANIC ASH CONTAMINATION .....	6
GUIDANCE 135REG35 GUIDANCE FOR REGULATION 35 OF ANR-135 – SAFETY RISK ASSESSMENT OF AERODROME RESCUE AND FIRE FIGHTING SERVICE .....	6
GUIDANCE 135REG38 GUIDANCE FOR REGULATION 38 OF ANR-135 – DETERMINATION OF AERODROME OPERATING MINIMA FOR HELICOPTERS .....	6
GUIDANCE 135REG39 GUIDANCE FOR REGULATION 39 OF ANR-135 – NOISE ABATEMENT PROCEDURE.....	7
GUIDANCE 135REG40 GUIDANCE FOR REGULATION 40 OF ANR-135 – ALTERNATE AERODROMES – GENERAL REQUIREMENTS.....	7
GUIDANCE 135REG42 GUIDANCE FOR REGULATION 42 OF ANR-135 – DESTINATION ALTERNATE .....	7
GUIDANCE 135REG46 GUIDANCE FOR REGULATION 46 OF ANR-135 – FUEL REQUIREMENTS-AEROPLANES .....	8
GUIDANCE 135REG49 GUIDANCE FOR REGULATION 49 OF ANR-135 – IN-FLIGHT FUEL MANAGEMENT .....	8
GUIDANCE 135REG50 GUIDANCE FOR REGULATION 50 OF ANR-135 – CHECKLISTS .....	9
GUIDANCE 135REG57 GUIDANCE FOR REGULATION 57 OF ANR-135 – FUELLING OPERATIONS FOR HELICOPTERS .....	11
APPENDIX A OPERATING MINIMA FOR HELICOPTERS .....	13

### GENERAL

Advisory Circulars (ACs) are issued by the Director-General of Civil Aviation (DGCA) from time to time to provide practical guidance or certainty in respect of the statutory requirements for aviation safety. ACs contain information about standards, practices and procedures acceptable to CAAS. An AC may be used, in accordance with section 3C of the Air Navigation Act (Cap. 6) (ANA), to demonstrate compliance with a statutory requirement. The revision number of the AC is indicated in parenthesis in the suffix of the AC number.

### PURPOSE

This AC provides guidance to demonstrate compliance with, and information related to, requirements regarding operational procedures for operations conducting under Air

Navigation (135 – Commercial Air Transport by Helicopters and Small Aeroplanes) Regulations (ANR-135).

#### **APPLICABILITY**

This AC is applicable for the AOC holder operating in accordance with ANR-135.

#### **RELATED REGULATIONS**

This AC relates specifically to Division 2 in Part 2 of ANR-135.

#### **RELATED ADVISORY CIRCULARS**

- AC 121-2-2 Approach and Landing Accident and Reduction Measures
- AC 121-2-3 Standard Operating Procedures for Flight Crew Members
- AC 121-2-4 Flight Crew Procedures and Training During Taxi Operations
- AC 121-2-5 Preventing Injuries caused by Turbulence
- AC 121-2-6 Mode Awareness and Energy State Management Aspects of Flight Deck Automation
- AC 121-2-7 Management of Lithium Batteries in the Aircraft Passenger Cabin
- AC 121-2-8 Level of Rescue and Fire Fighting Service Available
- AC 121-2-9 Procedures for Cabin Crew

#### **CANCELLATION**

This AC supercedes AC 135-2-1(Rev0). In this revision 1, other than editorial changes, guidance for Regulation 57 of ANR-135 regarding fuelling operations for helicopters was inserted.

#### **EFFECTIVE DATE**

This AC is effective from 21 December 2018.

#### **OTHER REFERENCES**

Nil.

## **GUIDANCE 135REG21 GUIDANCE FOR REGULATION 21 OF ANR-135 – USE OF OPERATIONS MANUAL**

- 1 Regulation 21 of ANR-135 requires that the AOC holder's operations be conducted in accordance with procedures specified in an approved Operations Manual.
- 2 The AOC holder may refer to the following ACs, as appropriate for operations under ANR-135, for guidance on the development of procedures to be included in the Operations Manual:
  - AC 121-2-2 Approach and Landing Accident and Reduction Measures
  - AC 121-2-3 Standard Operating Procedures for Flight Crew Members
  - AC 121-2-4 Flight Crew Procedures and Training During Taxi Operations
  - AC 121-2-5 Preventing Injuries caused by Turbulence
  - AC 121-2-6 Mode Awareness and Energy State Management Aspects of Flight Deck Automation
  - AC 121-2-7 Management of Lithium Batteries in the Aircraft Passenger Cabin
  - AC 121-2-9 Procedures for Cabin Crew

## **GUIDANCE 135REG22 GUIDANCE FOR REGULATION 22 OF ANR-135 – OPERATIONAL CONTROL**

- 1 OPERATIONAL CONTROL FUNCTIONS
  - 1.1 The AOC holder exercises operational control by making those decisions and performing those actions on a daily basis that are necessary to operate flights safely and in compliance with the regulations. Operational control functions include crew and aircraft scheduling, accepting charter flights from the public, reviewing weather and notices to airmen (NOTAM), and flight planning. Another aspect consists of developing and publishing flight control policies and procedures for flight crews and other operations personnel to follow in the performance of their duties.
  - 1.2 The AOC holder is responsible for collecting and disseminating information that is needed to plan and conduct flights safely, including information about enroute and terminal weather conditions, navigation, and aerodrome facilities.
- 2 OPERATIONAL CONTROL SYSTEMS
  - 2.1 Operational control systems vary with the scope of operation the AOC holder is authorised to conduct, the complexity of the operations, the means of communication, and with the persons who are involved in preparing for and conducting flights under the AOC holder's system.
- 3 AOC HOLDER RESPONSIBILITY
  - 3.1 The AOC holder's safety and quality assurance responsibility includes ensuring that both its flight crew and operational control employees comply with published policies and procedures.

#### 4 AOC HOLDER'S OPERATIONS MANUAL

- 4.1 As required in Regulation 21 of ANR-135, the AOC holder is to prepare and keep current a manual for the guidance of flight, ground and management personnel in the performance of their duties and responsibilities. The AOC holder must prepare in its Operations Manual, the duties and responsibilities of those persons to whom authority to exercise operational control has been delegated, providing the name of each manager responsible for flight operations (operational control) including a description of their duties and functions.
- 4.2 The AOC holder's Operations Manual must contain guidance on the conditions that must be met before a flight may be initiated or continues, or under which a flight must be diverted or terminated.

#### 5 SPECIFIC OPERATIONAL FUNCTIONS

- 5.1 Operational control includes, but is not limited to, the AOC holder's performance of the following functions:
- (a) Ensuring that only those operations authorised by the AOC are conducted.
  - (b) Ensuring that only crewmembers trained and qualified in accordance with the applicable regulations are assigned to conduct a flight.
  - (c) Ensuring that crewmembers are in compliance with flight and duty time requirement when departing on a flight.
  - (d) Designating a PIC for each flight.
  - (e) Providing the PIC and other personnel who perform operational control functions with access to the necessary information for the safe conduct of the flight (such as weather, NOTAMs, volcanic ash, conflict zone and aerodrome analysis).
  - (f) Specifying the conditions under which a flight may be released (weather minima, flight planning, airworthiness of aircraft, aircraft loading, and fuel requirements).
  - (g) Ensuring that each flight has complied with the conditions specified for release before it is allowed to depart.
  - (h) Ensuring that when the conditions specified for the flight's release cannot be met, the flight is either cancelled, delayed, re-routed or diverted.
  - (i) Monitoring the progress of each flight and initiating timely actions when the flight cannot be completed as planned, including diverting or terminating a flight.

## 6 SPECIFIC OPERATIONAL CONTROL SYSTEMS

- 6.1 The AOC holder must include, in the Operations Manual, policies and procedures appropriate to the flight release system used.

Note: The AOC holder's system for exercising operational control may be described in the AOC holder's SOPs.

## 7 OPERATIONAL STRUCTURE

- 7.1 An operational control function may be centralised in one individual or diversified throughout an AOC holder's organisation. In practice, it is not feasible for an individual to exercise operational control without assistance in any but the simplest of flight operations. Most AOC holders create specialised departments for crew scheduling, load control, and other functions. When these functions are delegated to specialised departments of the AOC holder's organisation, the AOC holder should be responsible for the following:

- (a) Establishing a means to ensure that all functions have been accomplished before a flight can be authorised to depart.
- (b) Establish effective internal communications, operating procedures, and administrative controls to meet this obligation.
- (c) Ensuring that these procedures are published in the AOC holder's operations manual.
- (d) Ensuring that all sub-contracted activities are carried out in adherence with its policies and procedures and that its sub-contractors provide timely notification to the AOC holder of any irregularities that will affect the safety and operational statuses of an aircraft or a flight.

### **GUIDANCE 135REG28**

### **GUIDANCE FOR REGULATION 28 OF ANR-135 – FLIGHT PREPARATION**

- 1 The pre-flight inspection may be completed by the flight crew or maintenance personnel where available. Details of this procedure must be included in the Operations Manual.
- 2 As required in Regulation 28 of ANR-135, the pilot-in-command must be advised on details about the airworthiness of the aircraft. Information such as those listed below should preferably be communicated via the technical log:
  - (a) when the next Scheduled Maintenance Inspection (SMI) is due, by flying hours/cycles and calendar time;
  - (b) any defects existing on the aircraft affecting its operational airworthiness and safety; and
  - (c) any maintenance actions due before the next SMI.
- 3 When a procedure acceptable to CAAS exists for the control of maintenance actions necessary between Scheduled Maintenance Inspections, it may not be practicable to include full details in the Technical Log. In such cases, it should be possible for the

flight crew to verify, with assistance of maintenance personnel if necessary, that no maintenance task is due or will become due before the end of the intended flight.

- 4 The AOC holder should provide any other information to the crew concerning the aircraft and its systems, including changes resulting from modifications, which may affect the operation of the aircraft.
- 5 The AOC holder should have operational and maintenance procedures which will ensure that the aircraft being dispatched by the AOC holder or the task is wholly or partly sub-contracted:
  - (a) Fuel uplifted prior to flight is free from contamination.
  - (b) Refueling of the aircraft is carried out in a controlled manner taking into account essential safety measures for fire prevention.
  - (c) Baggage and cargo are loaded and restrained in accordance with Flight Manual limitations and that cargo doors are securely fastened.
  - (d) Push-back and start-up are carried out to a standard procedure for the specific type of aircraft, under the control of a suitably trained person, that the area in which engines will be started is free from debris and contamination likely to damage the engines and that fire-fighting facilities are immediately available.
  - (e) Control surface and landing gear locks, restraint devices and blanks are removed.
  - (f) Proper attention is given to the rectification of recorded defects, compliance with the MEL and any limitations imposed in respect of the period of flights, flying hours or calendar time.
  - (g) The aircraft is serviced and inspected as required by the approved maintenance schedule.

**GUIDANCE 135REG34      GUIDANCE FOR REGULATION 34 OF ANR-135 – OPERATING INTO AREAS WITH KNOWN OR FORECASTED VOLCANIC ASH CONTAMINATION**

- 1 Procedures recommended for use by pilots whose aircraft have inadvertently encountered a volcanic ash cloud and for post-flight reporting can be found in ICAO Doc 9691 – *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds*.
- 2 Guidance on the risk management of flight operations in known or forecast volcanic ash contamination can be found in ICAO Doc 9974 – *Flight Safety and Volcanic Ash*.

**GUIDANCE 135REG35      GUIDANCE FOR REGULATION 35 OF ANR-135 – SAFETY RISK ASSESSMENT OF AERODROME RESCUE AND FIRE FIGHTING SERVICE**

- 1 The AOC holder is to refer to AC 121-2-8 for guidance in fulfilling this requirement.

**GUIDANCE 135REG38      GUIDANCE FOR REGULATION 38 OF ANR-135 – DETERMINATION OF AERODROME OPERATING MINIMA FOR HELICOPTERS**

- 1 The AOC holder of a helicopter may refer to **Appendix A** for a set of operating minima acceptable by CAAS for helicopters.

**GUIDANCE 135REG39      GUIDANCE FOR REGULATION 39 OF ANR-135 – NOISE ABATEMENT PROCEDURE**

- 1 Noise abatement regulations frequently require special handling techniques and routings after take-off. The flight manuals of the more recently certificated aeroplanes contain performance data related to noise abatement procedures. Details of the procedures for each airfield or runway used by the AOC holder, for which noise abatement regulations exist, should be provided in the operations manual. Instructions to ignore noise abatement procedures in emergency situations should also be included.
- 2 Where, in exceptional circumstances, it may be appropriate in the course of noise abatement procedures to start a turn at less than 500 ft agl, pilots should be given suitable instructions about restricting the angle of bank. Pilots should also be instructed not to reduce thrust below 500 ft agl. Above 500 ft agl, thrust should be reduced in accordance with the aircraft manufacturer's instructions. In the absence of such guidance, thrust should not be reduced to an extent that would result in a gross gradient of climb of less than 4%.

**GUIDANCE 135REG40      GUIDANCE FOR REGULATION 40 OF ANR-135 – ALTERNATE AERODROMES – GENERAL REQUIREMENTS**

- 1 The AOC holder of an aeroplane may refer to the Flight Planning and Fuel Management Manual (ICAO Doc 9976) for guidance on:
  - (a) the selection of incremental values regarding for height of cloud base and visibility to be added to the AOC holder's established aerodrome operating minima, as referred to in Regulation 40(3) of ANR-135; and
  - (b) establishing an appropriate margin of time for the estimated time of use of an aerodrome (i.e. a period before and after the ETA), as referred to in Regulation 40(4) of ANR-135.
- 2 The AOC holder may refer to the following for guidance on performing a safety risk assessment and on determining variations to alternate aerodrome selection criteria:
  - (a) Flight Planning and Fuel Management Manual (ICAO Doc 9976); and
  - (b) Safety Management Manual (ICAO Doc 9859)

**GUIDANCE 135REG42      GUIDANCE FOR REGULATION 42 OF ANR-135 – DESTINATION ALTERNATE**

- 1 The "separate runways" referred to in Regulation 42(2)(a)(iii) of ANR-135 are two or more runways at the same aerodrome configured such that if one runway is closed, operations at the other runway(s) can be conducted.

- 2 The AOC holder may refer to the Flight Planning and Fuel Management Manual (Doc 9976) for guidance on planning operations to isolated aerodromes.

**GUIDANCE 135REG46      GUIDANCE FOR REGULATION 46 OF ANR-135 – FUEL REQUIREMENTS-AEROPLANES**

- 1 When planning for fuel, the AOC holder should consider and make allowance for, as appropriate
  - (a) operation of systems such as de-icing which affect fuel consumption;
  - (s) a congested air traffic area where delays are likely;
  - (c) airfield where there is a need to climb to or descend from the en-route safety altitude whilst in the vicinity of the airfield;
  - (d) accuracy of the aircraft fuel indications
- 2 The “unforeseen factors” referred to in Regulation 46(3)(c) of ANR-135 are those which could have an influence on the fuel consumption to the destination aerodrome, such as deviations of an individual aeroplane from the expected fuel consumption data, deviations from forecast meteorological conditions, extended delays, and deviations from planned routings and/or cruising levels.
- 3 The AOC holder should consider setting one final reserve fuel value for each aeroplane type or variant in his fleet rounded up to an easily recalled figure.
- 4 The AOC holder should refer to the Flight Planning and Fuel Management Manual (ICAO Doc 9976) for guidance on the specific safety risk assessment, fuel consumption monitoring programmes and the advanced use of alternate aerodromes for a variation that CAAS may approve under Regulation 46(8) of ANR-135. The AOC holder may propose for CAAS’s approval:
  - (a) A minimum contingency fuel and minimum destination alternate fuel to cater for very short sectors or for destination alternate aerodromes which are close to the destination aerodrome;
  - (b) A cap for the contingency fuel for long haul operations.
- 5 For the purpose of Regulation 46(10) of ANR-135, the AOC holder may also refer to the Flight Planning and Fuel Management Manual (ICAO Doc 9976) for guidance on procedures for in-flight fuel management including re-planning adjustment or re-planning considerations when a flight begins to consume contingency fuel before take-off.

**GUIDANCE 135REG49      GUIDANCE FOR REGULATION 49 OF ANR-135 – IN-FLIGHT FUEL MANAGEMENT**

- 1 Regulation 49 of ANR-135 requires that the AOC holder establishes, and incorporates in the operations manual, policies and procedures for proper in-flight fuel management.
- 2 Besides instructions to ensure compliance with the regulations, the procedures should cover matters such as:



- (a) The notification to the pilot-in-command when any abnormal fuel procedure is used, and that at least two flight crew members should monitor that operation;
- (b) The continuation of a flight to a destination when normal reserve fuel is no longer available, and the associated safeguards, which should include:
  - (i) The decision to continue to only be made when one hour or less from the destination and when close to a usable en-route alternate;
  - (ii) The usable fuel remaining to be sufficient to fly to the destination aerodrome with at least the final fuel reserve (as specified in sub-Regulation 46(3)(f) of ANR-135) upon landing;
  - (iii) The actual and forecast meteorological conditions at the destination to allow a visual approach to landing until one hour after the estimated time of arrival (ETA), and that any significant crosswind on the runway be considered;
  - (iv) There are no known or probable air traffic control delays for the period from ETA to ETA plus one hour; and
  - (v) There are at least two independent runways available and suitable for landing.
- (c) the proper phraseology, as specified in Regulation 39 of ANR-91, to be used by its pilots with ATC regarding fuel status of the aircraft.:

Notes:

- (i) The declaration of “MINIMUM FUEL” informs ATC that all planned aerodrome options have been reduced to a specific aerodrome of intended landing and any change to the existing clearance may result in landing with less than planned final reserve fuel. This is not an emergency situation but an indication that an emergency situation is possible should any additional delay occur.
- (ii) The words “MAYDAY FUEL” describe the nature of the distress conditions as required in Volume II, 5.3.2.1, b) 3. of Annex 10 to the Chicago Convention.

- 3 The AOC holder may refer to the Flight Planning and Fuel Management Manual (ICAO Doc 9976) for further guidance on procedures for in-flight fuel management. It should be noted that the protection of final reserve fuel is intended to ensure a safe landing at any aerodrome when unforeseen occurrences may not permit safe completion of an operation as originally planned

**GUIDANCE 135REG50      GUIDANCE FOR REGULATION 50 OF ANR-135 – CHECKLISTS**

- 1 The AOC holder should establish the use of checklists (which may be in the form of job aids) as an integral part of the organisation’s standard operating procedures (SOPs). Flight crew should be instructed on the use of these checklists.

- 2 The drills and checks to be followed in the operation of the aircraft, including those for non-normal or emergency conditions, should be listed in full in the manual – preferably in a separate volume. Emergency equipment checklists and instructions on their use should also be provided. The pilot-in-command should ensure that the checklists are complied with. The design of the checklists should observe human factor principles.
- 3 There should be items in the normal drill requiring the pilot-in-command to brief other flight crew members on the following matters:
  - 3.1 Prior to take-off:
    - (a) The actions to be taken in the event of an emergency arising during or immediately after take-off;
    - (b) Any special requirements for take-off in crosswinds and on wet or otherwise contaminated runways;
    - (c) Noise abatement procedures;
    - (d) Selection of radio aids.
  - 3.2 Prior to landing:
    - (a) Selection of radio aids;
    - (b) Missed approach procedure;
    - (c) Any special handling or systems requirements for landing;
    - (d) Selected alternate for diversion.

Note: It is not suggested that these items should be included in checklists in detail; if suitable instructions are provided elsewhere, the word 'briefing' will be sufficient at the appropriate points in the lists.
- 4 Checklists will not be acceptable unless they include detailed requirements for the setting and cross checking of altimeters for all phases of flight. There should also be an item in the normal drills requiring minimum safe altitudes to be checked before descending from cruising level.
- 5 Examples of emergency drills to be covered in checklists are:
  - (a) Engine failure;
  - (b) Engine fire and severe engine damage;
  - (c) Propeller malfunction;
  - (d) Failure of normal feathering system;
  - (e) Fuel filter icing;
  - (f) Relighting of turbine engines;
  - (g) Bus-bar and other serious electrical failures;
  - (h) Malfunction of power control systems;
  - (i) Pressurisation failure and emergency descent;
  - (j) Cabin/hold fire;
  - (k) Smoke removal;
  - (l) Essential actions prior to commencement of emergency evacuation;
  - (m) Hydraulic failures; and
  - (n) Brake overheat.
- 6 In aircraft operated by two pilots, checklists should be stowed so that they are available to both pilots. If this is not possible, separate drill cards or checklists should be provided for each pilot for use on the flight deck. If the flight crew includes a flight engineer or third pilot, a separate checklist should be provided for his/her use. In "single pilot" aircraft, checklists should be supplemented by the placarding of vital actions for final approach and landing. Emergency drills should be clearly marked for immediate use and, on larger and more complex aircraft; they should preferably be given on a

separate set of cards kept apart from other documents on the flight deck and immediately available. For cabin crew, details of their ditching, crash landing and emergency evacuation drills should be readily available in flight. This can be achieved either by issue to each member of the cabin crew of a copy of their emergency drills – which they should be required to carry with them – or by stowing the drills cards at appropriate positions in the cabin. All checklists or drill cards must be of a quality sufficient to withstand heavy wear and to remain in legible condition.

- 7 On multi-crew aircraft, the manual should contain clear instructions that checklists are always to be used. On single pilot aircraft, the AOC holder may at his discretion allow in-flight drills to be carried out from memory. When an AOC holder elects to adopt this procedure, he/she must, nevertheless, ensure that the aircraft is provided with a checklist which is readily available to the pilot. Memorised drills must be carried out strictly in accordance with the checklist and emergency drills must be verified as soon as possible by reference to the checklist.
- 8 Aeroplane Bomb Search Procedure Checklist
- 8.1 In accordance with Regulation 7 of ANR-135, the AOC holder is to ensure that all aircraft carry a checklist of the procedures to be followed for that aircraft type in searching for concealed weapons, explosives, or other dangerous devices when a well-founded suspicion exists that the aircraft may be the object of an act of unlawful interference. The AOC holder should also support the checklist with guidance on the appropriate course of action to be taken should a bomb or suspicious object be found, and provide information on the least-risk bomb location specific to that aircraft type.

#### **GUIDANCE 135REG57**

#### **GUIDANCE FOR REGULATION 57 OF ANR-135 – FUELLING OPERATIONS FOR HELICOPTERS**

- 1 As required in Regulation 57(2) of ANR-135, the AOC holder needs to obtain a specific authorisation from CAAS if it wishes to conduct refuelling or defueling operations when passengers are on board the helicopter or embarking/disembarking the helicopter. In seeking such a specific authorisation from CAAS, the AOC holder must demonstrate to CAAS that such operations will be properly attended to by sufficient qualified personnel, who are ready to initiate and direct an evacuation of the helicopter by the most practical, safe and expeditious means available.
- 2 In order to achieve this, the AOC holder must establish procedures and specify conditions under which such refuelling or defueling may be carried out. These procedures include:
  - (a) Briefing by the flight crew to passengers on what actions to take if an incident occurs during refuelling/defueling;
  - (b) Maintaining a constant two-way communication using the helicopter's inter-communication system or other suitable means between the ground crew supervising the refuelling/defueling and the qualified personnel on board the helicopter; and

Note.— Caution needs to be exercised when using radios for this purpose due to the potential for stray currents and radio-induced voltages.

- (c) Ensuring that during an emergency shutdown procedure, the flight crew has checked that any personnel or passengers outside the helicopter are clear of the rotor area;
  - (d) Ensuring that AVGAS (aviation gasoline) or wide-cut type fuel or a mixture of these types of fuel is not used during refuelling, when passengers are on board.
- 3 The operational procedures should also specify that precautions are to be taken. These precautions include:
- (a) doors on the refuelling/defueling side of the helicopter to remain closed where possible, unless these are the only suitable exits;
  - (b) doors on the non-refuelling/defueling side of the helicopter to remain open, weather permitting, unless otherwise specified by the RFM;
  - (c) fire-fighting facilities of the appropriate scale to be positioned so as to be immediately available in the event of a fire;
  - (d) if the presence of fuel vapour is detected inside the helicopter, or any other hazard arises during refuelling,/defueling to be stopped immediately;
  - (e) the ground or deck area beneath the exits intended for emergency evacuation to be kept clear;
  - (f) seat belts to be unfastened to facilitate rapid egress; and
  - (g) with rotors turning, only ongoing passengers to remain on board.
- 4 The AOC holder must include the procedures and conditions in the operations manual (to be approved in accordance with Regulation 21(4) of ANR-119), and ensure that relevant personnel involved such operations are trained accordingly.

**APPENDIX A**

**OPERATING MINIMA FOR HELICOPTERS**

1 RVR/Visibility

1.1 A helicopter should only take off when the following take-off minima is met.

- (a) For operations in performance class 1, when the RVR and visibility satisfy the take-off minima in Table 1.

**Table 1 – RVR/Visibility for take off**

<b>On-shore heliports with IFR departure procedure</b>	<b>RVR/Visibility</b>
No lighting and no marking (Day)	250m or the rejected distance, whichever is greater
No marking (Night)	800m
Runway edge/FATO lighting and centre line marking	200m
Runway edge/FATO lighting, centre line marking and RVR information	150m
Offshore Helideck	
Two pilot operations	250m

Note: The pilot-in-command must establish that the take-off path is free of obstacles.

- (b) For operations in performance class 2, when the RVR/Visibility is at least 1000m and a cloud ceiling of 500 ft.

2 Non-precision approach

2.1 A helicopter should only perform a non-precision approach when the minimum descent height is not lower than:

- (a) The obstacle clearance height/limit (OCH/OCL) for the category of helicopter;
- or
- (b) the system minima for the non-precision approach aids given in Table 2.

**Table 2 – System minima for non-precision approach aids**

<b>Facility</b>	<b>Lowest MDH</b>
ILS (no glide path – LLZ)	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	300 ft
VDH (QDM & OCH)	300 ft

- 2.2 Other than the situation in paragraph 2.3, the RVR minima for non-precision approaches by a helicopter operating in performance Class 1 should be that given in Table 3.

**Table 3 – On-shore non-precision approach minima**

<b>On-shore Non-precision Approach Minima (5)(6)</b>				
<b>MDH (ft)</b>	<b>Facilities/RVR</b>			
	<b>Full(1)</b>	<b>Intermediate(2)</b>	<b>Basic(3)</b>	<b>Nil(4)</b>
250-299 ft	600 m	800 m	1 000 m	1 000 m
300-449 ft	800 m	1 000 m	1 000 m	1 000 m
450 ft and above	1 000 m	1 000 m	1 000 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 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 lights 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 degrees. Greater descent slopes will usually require that visual guide slope guidance (e.g. PAPI) is also visible at Minimum Descent Height.

Note 6: The MDH mentioned in Table 3 refers to the initial calculation of MDH, rounding up to the nearest ten feet, which may be done for operational purposes e.g. conversion to MDA

- 2.3 When the missed approach point is within 0.5 NM of the landing threshold, the approach minima given for full facilities may be used regardless of the length of approach lighting available.

### 3 Precision Approach – Category I operations

- 3.1 The decision height to be used for a Category I precision approach by a helicopter should not be lower than:
- (a) the minimum decision height specified in the helicopter flight manual if stated;
  - (b) the minimum height to which the precision approach aid can be used without the required visual reference; or
  - (c) the OCH/OCL for the category of helicopter or 200 ft.

- 3.2 The RVR minima for Category I operations by a helicopter operating in performance Class 1 should be that in Table 4.

**Table 4 – On-shore Precision Approach Minima – Category I**

<b>On-shore Precision Approach Minima – Category I</b>				
<b>(5)(6)(7)</b>				
	<b>Facilities/RVR</b>			
	<b>Full (1)</b>	<b>Intermediate (2)</b>	<b>Basic (3)</b>	<b>Nil (4)</b>
200 ft	500 m	600 m	700 m	1 000 m
201-250 ft	550 m	650 m	750 m	1 000 m
251-300 ft	600 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 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 lights facilities comprise FATO/runway markings. FATO/runway edge lights, threshold lights, FATO/runway end lights or no lights at all.

Note 5: The Table is applicable to conventional approaches with a glide slope angle up to and including 4 degrees.

Note 6: The DH mentioned in 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.

Note 7: The DH mentioned in 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 purpose (e.g. conversion to DH)

#### 4 Visual Flight Rules Operating Minima

- 4.1 In addition to the VFR in the Rules of the Air,
- (a) a helicopter should only operate in flight visibility of not less than 1500 m during daylight and not less than 5 km by night; and
  - (b) low level overwater flights out of sight of land should only to be conducted under VFR when the cloud ceiling is greater than 600 ft by day and 1200 ft by night;

- 4.2 Notwithstanding paragraph 4.1, in class G airspace, when flying between helidecks where the over water sector is less than 10 km, VFR flights by a helicopter should be conducted in accordance to Table 5.

**Table 5 – Minima for flying between helidecks located in class G airspace**

	Day		Night	
	Height (Note 1)	Visibility	Height (Note 1)	Visibility
Single Pilot	300 ft	3 km	500 ft	5 km
Two Pilots	300 ft	2 km (Note 2)	500 ft	

Note 1: The cloud base should be such as to allow flight at the specified height below and clear of cloud.

Note 2: Helicopters may be operated in flight visibility down to 1500m provided the destination or an intermediate structure are continuously visible.

- 4.3 Notwithstanding paragraph 4.3, a helicopter operating under special VFR conditions shall comply with the zone minima in force.

5 On-shore Circling

- 5.1 The MDH for on-shore circling should not be less than 250 ft, and the meteorological visibility should not be less than 800m.

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