European Aviation Safety Agency *30 Aug 2011*

Comment Response Document (CRD) to Notice of Proposed Amendment (NPA) 2009-02b

for an Agency Opinion on a Commission Regulation establishing the Implementing Rules for air operations of Community operators

and

draft Decision of the Executive Director of the European Aviation Safety Agency on Acceptable Means of Compliance and Guidance Material related to the Implementing Rules for air operations of Community operators

'Part-NCC and Part-NCO'

CRD b.3 – Resulting text of Part-NCO

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Part-NCO – IR

Subpart A – General requirements

NCO.GEN.100 Competent authority

(a) The competent authority shall be the authority designated by the Member State where the aircraft is registered.

(b) If the aircraft is registered in a third country, the competent authority shall be the authority designated by the Member State where the operator is established or residing.

NCO.GEN.101 Touring motor glider and powered sailplanes

(a) A touring motor glider shall be operated following the requirements for:

(1) aeroplanes when it is power-driven by its engine; and

(2) sailplanes when operated without using its engine.

(b) A touring motor glider shall be equipped in compliance with the requirements applicable to aeroplanes.

(c) Powered sailplanes shall be operated and equipped in compliance with the requirements applicable to sailplanes.

NCO.GEN.105 Pilot-in-command responsibilities and authority

(a) The pilot-in-command shall be responsible for:

(1) the safety of the aircraft and of all crew members, passengers and cargo on board during aircraft operations as referred to in 1.c of Annex IV to Regulation (EC) No 216/2008[1];

(2) the initiation, continuation, termination or diversion of a flight in the interest of safety;

(3) ensuring that all, operational procedures and checklists are complied with as referred to in 1.b of Annex IV to Regulation (EC) No 216/2008;

(4) only commencing a flight if he/she is satisfied that all operational limitations referred to in 2.a.3. of Annex IV to Regulation (EC) No 216/2008 are complied with, as follows:

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[1] Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC. *OJ L 79, 19.3.2008, p. 1,* as amended by Regulation (EC) No 1108/2009 of the European Parliament and of the Council of 21 October 2009, *OJ L 309, 24.11.2009, p. 51.*

(i) the aircraft is airworthy;

(ii) the aircraft is duly registered;

(iii) instruments and equipment required for the execution of that flight are installed in the aircraft and are operative, unless operation with inoperative equipment is permitted by the minimum equipment list (MEL) or equivalent document, if applicable;

(iv) the mass of the aircraft and, except in the case of balloons, the centre of gravity location are such that the flight can be conducted within limits prescribed in the airworthiness documentation;

(v) all baggage and cargo is properly loaded and secured; and

(vi) the aircraft operating limitations as specified in the aircraft flight manual (AFM) will not be exceeded at any time during the flight;

(5) not commencing a flight if he/she is incapacitated from performing duties by any cause such as injury, sickness, fatigue or the effects of any psychoactive substance;

(6) not continuing a flight beyond the nearest weather-permissible aerodrome or operating site when his/her capacity to perform duties is significantly reduced from causes such as fatigue, sickness or lack of oxygen;

(7) deciding on acceptance of the aircraft with unserviceabilities in accordance with the configuration deviation list (CDL) or minimum equipment list (MEL), as applicable; and

(8) recording utilisation data and all known or suspected defects in the aircraft at the termination of the flight, or series of flights, in the aircraft technical log or journey log for the aircraft.

(b) The pilot-in-command shall have the authority to refuse carriage of or disembark any person, baggage or cargo that may represent a potential hazard to the safety of the aircraft or its occupants.

(c) The pilot-in-command shall, as soon as possible, report to the appropriate air traffic services (ATS) unit any hazardous weather or flight conditions encountered that are likely to affect the safety of other aircraft.

(d) The pilot-in-command shall, in an emergency situation that requires immediate decision and action, take any action he/she considers necessary. In such cases he/she may deviate from rules, operational procedures and methods in the interest of safety.

(e) During flight, the pilot-in-command shall:

(1) except for balloons, keep his/her safety belt fastened while at his/her station; and

(2) remain at the controls of the aircraft at all times.

(f) The pilot-in-command shall submit a report of an act of unlawful interference without delay to the competent authority and shall inform the designated local authority.

(g) The pilot-in-command shall notify the nearest appropriate authority by the quickest available means of any accident involving the aircraft, resulting in serious injury or death of any person or substantial damage to the aircraft or property.

NCO.GEN.106 Pilot-in-command responsibilities and authority – balloons

The pilot-in-command of a balloon shall in addition to NCO.GEN.105 be responsible for:

(a) the pre-flight briefing of those persons assisting in the inflation and deflation of the envelope; and

(b) ensuring that persons assisting in the inflation and deflation of the envelope wear appropriate protective clothing.

NCO.GEN.110 Compliance with laws, regulations and procedures

(a) The pilot-in-command shall comply with the laws, regulations and procedures of those States where operations are conducted.

(b) The pilot-in-command shall be familiar with the laws, regulations and procedures, pertinent to the performance of his/her duties, prescribed for the areas to be traversed, the aerodromes or operating sites to be used and the related air navigation facilities as referred to in 1.a. of Annex IV to Regulation (EC) No 216/2008.

NCO.GEN.115 Taxiing of aeroplanes

An aeroplane shall only be taxied on the movement area of an aerodrome if the person at the controls:

(a) is an appropriately qualified pilot; or

(b) has been designated by the owner of the aeroplane and:

(1) is trained to taxi the aircraft;

(2) is trained to use the radio telephone;

(3) has received instruction in respect of aerodrome layout, routes, signs, marking, lights, air traffic control (ATC) signals and instructions, phraseology and procedures; and

(4) is able to conform to the operational standards required for safe aeroplane movement at the aerodrome.

NCO.GEN.120 Rotor engagement

A helicopter rotor shall only be turned under power for the purpose of flight with a qualified pilot at the controls.

NCO.GEN.125 Portable electronic devices

The pilot-in-command shall not permit any person to use a portable electronic device (PED) on board an aircraft that could adversely affect the performance of the aircraft's systems and equipment.

NCO.GEN.130 Information on emergency and survival equipment carried

The operator shall, at all times, have available for immediate communication to rescue coordination centres (RCCs) lists containing information on the emergency and survival equipment carried on board.

NCO.GEN.135 Documents, manuals and information to be carried

(a) The following documents, manuals and information shall be carried on each flight as originals or copies unless otherwise specified:

(1) the AFM, or equivalent document(s);

(2) the original certificate of registration;

(3) the original certificate of airworthiness (CofA);

(4) the noise certificate, if applicable;

(5) the list of specific approvals, if applicable;

(6) the aircraft radio licence, if applicable;

(7) the third party liability insurance certificate(s);

(8) the journey log, or equivalent, for the aircraft;

(9) the aircraft technical log, in accordance with Part-M, if applicable;

(10) details of the filed ATS flight plan, if applicable;

(11) current and suitable aeronautical charts for the route of the proposed flight and all routes along which it is reasonable to expect that the flight may be diverted;

(12) procedures and visual signals information for use by intercepting and intercepted aircraft;

(13) the MEL or CDL, if applicable; and

(14) any other documentation that may be pertinent to the flight or is required by the States concerned with the flight.

(b) Notwithstanding (a), on flights:

(1) intending to take off and land at the same aerodrome/operating site; or

(2) remaining within a distance or area determined by the competent authority,

the documents and information in (a)(2) to (a)(9) may be retained at the aerodrome or operating site.

(c) Notwithstanding (a), on flights with balloons or sailplanes, excluding touring motor gliders (TMGs), the documents and information in (a)(2) to (a)(9) and (a)(12) to (a)(14) may be carried in the retrieve vehicle.

(d) The pilot-in-command shall make available within a reasonable time of being requested to do so by the competent authority, the documentation required to be carried on board.

NCO.GEN.140 Transport of dangerous goods

(a) The transport of dangerous goods by air shall be conducted in accordance with Annex 18 to the Chicago Convention as last amended and amplified by the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Doc 9284-AN/905), including its supplements and any other addenda or corrigenda.

(b) Dangerous goods shall only be transported by the operator approved in accordance with SPA.DG, except when:

(1) they are not subject to the Technical Instructions in accordance with Part 1 of those Instructions; or

(2) they are carried by passengers, or are in baggage, in accordance with Part 8 of the Technical Instructions.

(c) The pilot-in-command shall take all reasonable measures to prevent dangerous goods from being carried on board inadvertently.

(d) The pilot-in-command shall, in accordance with the Technical Instructions, report without delay to the competent authority and the appropriate authority of the State of occurrence in the event of:

(1) any dangerous goods accidents or incidents; and

(2) the discovery of undeclared or misdeclared dangerous goods in cargo or passengers' baggage.

(e) The pilot-in-command shall ensure that passengers are provided with information about dangerous goods in accordance with the Technical Instructions.

NCO.GEN.145 Immediate reaction to a safety problem

The operator shall implement:

(a) any safety measures mandated by the competent authority in accordance with ARO.GEN.135(c); and

(b) any relevant mandatory safety information issued by the Agency, including airworthiness directives.

NCO.GEN.150 Journey log

Particulars of the aircraft, its crew and each journey shall be retained for each flight, or series of flights, in the form of a journey log, or equivalent.

NCO.GEN.155 Minimum equipment list

A minimum equipment list (MEL) may be established as specified under 8.a.3. of Annex IV to Regulation (EC) No 216/2008. In that case, the MEL and any amendment thereto shall be approved by the competent authority or, in case of aircraft registered in a third country, the State of Registry.

Subpart B – Operational procedures

NCO.OP.100 Use of aerodromes and operating sites

The pilot-in-command shall only use aerodromes and operating sites that are adequate for the type of aircraft and operation concerned.

NCO.OP.105 Specification of isolated aerodromes - aeroplanes

For the selection of alternate aerodromes and the fuel policy, the pilot-in-command shall consider an aerodrome as an isolated aerodrome if the fuel required to the nearest adequate destination alternate aerodrome is more than:

(a) for aeroplanes with reciprocating engines, fuel to fly for 60 minutes; or

(b) for aeroplanes with turbine engines, fuel to fly for 90 minutes.

NCO.OP.110 Aerodrome operating minima – aeroplanes and helicopters

(a) For IFR flights, the pilot-in-command shall select and use aerodrome operating minima for each departure, destination and alternate aerodrome. Such minima shall:

  (1) not be lower than those established by the State in which the aerodrome is located, except when specifically approved by that State; and

  (2) when low visibility operations are being undertaken, be approved by the competent authority in accordance with SPA.LVO.

(b) When selecting the aerodrome operating minima, the pilot-in-command shall take the following into account:

  (1) the type, performance and handling characteristics of the aircraft;

  (2) his/her competence and experience;

  (3) the dimensions and characteristics of the runways and final approach and take-off areas (FATOs) that may be selected for use;

  (4) the adequacy and performance of the available visual and non-visual ground aids;

  (5) the equipment available on the aircraft for the purpose of navigation and/or control of the flight path, during the take-off, the approach, the flare, the landing, the rollout and the missed approach;

  (6) the obstacles in the approach, the missed approach and the climb-out areas required for the execution of contingency procedures;

  (7) the obstacle clearance altitude/height for the instrument approach procedures;

  (8) the means to determine and report meteorological conditions; and

  (9) the flight technique to be used during the final approach.

(c) The minima for a specific type of approach and landing procedure shall be used if:

(1) the ground equipment required for the intended procedure is operative;

(2) the aircraft systems required for the type of approach are operative;

(3) the required aircraft performance criteria are met; and

(4) the pilot is qualified appropriately.

NCO.OP.111 Aerodrome operating minima – NPA, APV, CAT I operations

(a) The decision height (DH) to be used for a non-precision approach (NPA) flown with the continuous descent final approach (CDFA) technique, approach procedure with vertical guidance (APV) or CAT I operation shall not be lower than the highest of:

(1) the minimum height to which the approach aid can be used without the required visual reference;

(2) the obstacle clearance height (OCH) for the category of aircraft;

(3) the published approach procedure decision height (DH) where applicable;

(4) the system minimum specified in Table 1; or

(5) the minimum DH specified in the AFM or equivalent document, if stated.

(b) The minimum descent height (MDH) for an NPA operation flown without the CDFA technique shall not be lower than the highest of:

(1) the OCH for the category of aircraft;

(2) the system minimum specified in Table 1; or

(3) the minimum MDH specified in the AFM, if stated.

Table 1: System minima

Facility	**Lowest DH/MDH (ft)**
Instrument landing system (ILS)	200
Global navigation satellite system (GNSS)/ Satellite-based augmentation system (SBAS) (Lateral precision with vertical guidance approach (LPV))	200
GNSS (Lateral Navigation (LNAV))	250
GNSS/Baro-vertical navigation (VNAV) (LNAV/ VNAV)	250
Localiser (LOC) with or without distance measuring equipment (DME)	250
Surveillance radar approach (SRA) (terminating at	250

Facility	**Lowest DH/MDH (ft)**
½ NM)	
SRA (terminating at 1 NM)	300
SRA (terminating at 2 NM or more)	350
VHF omnidirectional radio range (VOR)	300
VOR/DME	250
Non-directional beacon (NDB)	350
NDB/DME	300
VHF direction finder (VDF)	350

NCO.OP.112 Aerodrome operating minima – circling operations with aeroplanes

(a) The MDH for a circling operation with aeroplanes shall not be lower than the highest of:

(1) the published circling OCH for the aeroplane category;

(2) the minimum circling height derived from Table 2; or

(3) the DH/MDH of the preceding instrument approach procedure.

(b) The minimum visibility for a circling operation with aeroplanes shall be the highest of:

(1) the circling visibility for the aeroplane category, if published;

(2) the minimum visibility derived from Table 2; or

(3) the runway visual range / converted meteorological visibility (RVR/CMV) of the preceding instrument approach procedure.

Table 2: MDH and minimum visibility for circling vs. aeroplane category

	Aeroplane category			
	A	**B**	**C**	**D**
MDH (ft)	400	500	600	700
Minimum meteorological visibility (m)	1 500	1 600	2 400	3 600

NCO.OP.113 Aerodrome operating minima – circling operations with helicopters

The MDH for an onshore circling operation with helicopters shall not be lower than 250 ft and the meteorological visibility not less than 800 m.

NCO.OP.115 Departure and approach procedures – aeroplanes and helicopters

(a) The pilot-in-command shall use the departure and approach procedures established by the State of the aerodrome, if such procedures have been published for the runway or FATO to be used.

(b) The pilot-in-command may deviate from a published departure route, arrival route or approach procedure:

(1) provided obstacle clearance criteria can be observed, full account is taken of the operating conditions and any ATC clearance is adhered to; or

(2) when being radar-vectored by an ATC unit.

NCO.OP.120 Noise abatement procedures – aeroplanes, helicopters and powered sailplanes

The pilot-in-command shall take into account published noise abatement procedures to minimise the effect of aircraft noise while ensuring that safety has priority over noise abatement.

NCO.OP.121 Noise abatement procedures - balloons

The pilot-in-command shall take into account operating procedures to minimise the effect of heating-system noise while ensuring that safety has priority over noise abatement.

NCO.OP.125 Fuel and oil supply - aeroplanes

(a) The pilot-in-command shall only commence a flight if the aeroplane carries sufficient fuel and oil for the following:

(1) for visual flight rules (VFR) flights:

(i) by day, to fly to the aerodrome of intended landing and thereafter to fly for at least 30 minutes at normal cruising altitude; or

(ii) by night, to fly to the aerodrome of intended landing and thereafter to fly for at least 45 minutes at normal cruising altitude;

(2) for instrument flight rules (IFR) flights:

(i) when no destination alternate is required, to fly to the aerodrome of intended landing and thereafter to fly for at least 45 minutes at normal cruising altitude; or

(ii) when a destination alternate is required, to fly to the aerodrome of intended landing, to an alternate aerodrome and thereafter to fly for at least 45 minutes at normal cruising altitude.

(b) In computing the fuel required, the following shall be taken into consideration:

(1) forecast meteorological conditions;

(2) anticipated ATC routings and traffic delays;

(3) procedures for loss of pressurisation or failure of one engine while en route, where applicable; and

(4) any other condition that may delay the landing of the aeroplane or increase fuel and/or oil consumption.

(c) Nothing shall preclude amendment of a flight plan in-flight, in order to re-plan the flight to another destination, provided that all requirements can be complied with from the point where the flight is re-planned.

NCO.OP.126 Fuel and oil supply - helicopters

(a) The pilot-in-command shall only commence a flight if the helicopter carries sufficient fuel and oil for the following:

(1) for VFR flights, to fly to the aerodrome/operating site of intended landing and thereafter to fly for at least 20 minutes at best-range-speed; and

(2) for IFR flights:

(i) to fly to the aerodrome/operating site of intended landing, and thereafter to fly for 30 minutes at holding speed at 450 m (1 500 ft) above the destination aerodrome/operating site under standard temperature conditions and approach and land, when no alternate is required or no weather-permissible alternate aerodrome is available; or

(ii) when an alternate is required, to fly to and execute an approach and a missed approach at the aerodrome/operating site of intended landing, and thereafter:

(A) to fly to the specified alternate; and

(B) to fly for 30 minutes at holding speed at 450 m (1 500 ft) above the alternate aerodrome/operating site under standard temperature conditions and approach and land.

(b) In computing the fuel required including to provide for contingency, the following shall be taken into consideration:

(1) forecast meteorological conditions;

(2) anticipated ATC routings and traffic delays;

(3) procedures for loss of pressurisation or failure of one engine while en route, where applicable; and

(4) any other condition that may delay the landing of the aircraft or increase fuel and/or oil consumption.

(c) Nothing shall preclude amendment of a flight plan in-flight, in order to re-plan the flight to another destination, provided that all requirements can be complied with from the point where the flight is re-planned.

NCO.OP.127 Fuel and ballast supply and planning - balloons

(a) The pilot-in-command shall only commence a flight if the reserve fuel, gas or ballast is sufficient for 30 minutes of flight.

(b) Fuel, gas or ballast supply calculations shall be based upon at least the following operating conditions under which the flight is to be conducted:

(1) data provided by the balloon manufacturer;

(2) anticipated masses;

(3) expected meteorological conditions; and

(4) air navigation services provider procedures and restrictions.

NCO.OP.130 Carriage of passengers

Except for balloons, the pilot-in-command shall ensure that, prior to and during taxiing, take-off and landing, and whenever deemed necessary in the interest of safety, each passenger on board occupies a seat or berth and has his/her safety belt or restraint device properly secured.

NCO.OP.135 Passenger briefing

The pilot-in-command shall ensure that before or, where appropriate, during the flight, passengers are given a briefing on emergency equipment and procedures.

NCO.OP.140 Flight preparation

(a) Before commencing a flight, the pilot-in-command shall ascertain by every reasonable means available that the ground and/or water facilities including communication facilities and navigation aids available and directly required on such flight, for the safe operation of the aircraft, are adequate for the type of operation under which the flight is to be conducted.

(b) 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.

NCO.OP.145 Destination alternate aerodromes – aeroplanes

For IFR flights, the pilot-in-command shall specify at least one weather-permissible destination alternate aerodrome in the flight plan, unless:

(a) the available current meteorological information indicates that, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the

shorter period, the approach and landing may be made under visual meteorological conditions (VMC); or

(b) the place of intended landing is isolated and:

(1) an instrument approach procedure is prescribed for the aerodrome of intended landing; and

(2) available current meteorological information indicates that the following meteorological conditions will exist from 2 hours before to 2 hours after the estimated time of arrival:

(i) a cloud base of at least 300 m (1 000 ft) above the minimum associated with the instrument approach procedure; and

(ii) visibility of at least 5.5 km or of 4 km more than the minimum associated with the procedure.

NCO.OP.146 Destination alternate aerodromes – helicopters

For IFR flights, the pilot-in-command shall specify at least one weather-permissible destination alternate aerodrome in the flight plan, unless:

(a) available current meteorological information indicates that the following meteorological conditions will exist from 2 hours before to 2 hours after the estimated time of arrival, or from the actual time of departure to 2 hours after the estimated time of arrival, whichever is the shorter period:

(1) a cloud base of at least 120 m (400 ft) above the minimum associated with the instrument approach procedure; and

(2) visibility of at least 1 500 m more than the minimum associated with the procedure; or

(b) the place of intended landing is isolated and:

(1) an instrument approach procedure is prescribed for the aerodrome of intended landing;

(2) the cloud base is at least 120 m (400 ft) above the minimum associated with the instrument approach procedure;

(3) visibility is at least 1 500 m more than the minimum associated with the procedure; and

(4) a point of no return (PNR) is determined in case of an offshore destination.

NCO.OP.150 Refuelling with passengers embarking, on board or disembarking

The aircraft shall not be refuelled when passengers are embarking, on board or disembarking.

NCO.OP.155 Stowage and securing of equipment and baggage in the aircraft cabin

The pilot-in-command shall ensure that all equipment and baggage on board are properly secured and an emergency evacuation remains possible.

NCO.OP.160 Smoking on board – aeroplanes and helicopters

The pilot-in-command shall not allow smoking on board:

(a) whenever considered necessary in the interest of safety; and

(b) during refuelling of the aircraft.

NCO.OP.161 Smoking on board – sailplanes and balloons

No person shall be allowed to smoke on board a sailplane or balloon.

NCO.OP.165 Meteorological conditions

(a) The pilot-in-command shall only commence or continue a VFR flight if the latest available meteorological information indicates that the weather conditions along the route and at the intended destination at the estimated time of use will be at or above the applicable VFR operating minima.

(b) The pilot-in-command shall only commence or continue an IFR flight towards the planned destination aerodrome if the latest available meteorological information indicates that, at the estimated time of arrival, the weather conditions at the destination or at least one destination alternate aerodrome are at or above the applicable aerodrome operating minima.

(c) If a flight contains VFR and IFR segments, the meteorological information referred to in (a) and (b) shall be applicable as far as relevant.

NCO.OP.170 Ice and other contaminants – ground procedures

The pilot-in-command shall only commence take-off if the aircraft is clear of any deposit that might adversely affect the performance or controllability of the aircraft, except as permitted in the AFM.

NCO.OP.175 Ice and other contaminants – flight procedures

(a) The pilot-in-command shall only commence a flight or intentionally fly into expected or actual icing conditions if the aircraft is certified and equipped to cope with such conditions as referred to in 2.a.5 of Annex IV to Regulation (EC) No 216/2008.

(b) If icing exceeds the intensity of icing for which the aircraft is certified or if an aircraft not certified for flight in known icing conditions encounters icing, the pilot-in-command shall exit the icing conditions without delay, by a change of level and/or route, and if necessary by declaring an emergency to ATC.

NCO.OP.180 Take-off conditions – aeroplanes and helicopters

Before commencing take-off, the pilot-in-command shall be satisfied that:

(a) according to the information available, the weather at the aerodrome or operating site and the condition of the runway or FATO intended to be used would not prevent a safe take-off and departure; and

(b) applicable aerodrome operating minima will be complied with.

NCO.OP.181 Take-off conditions - balloons

Before commencing take-off, the pilot-in-command of a balloon shall be satisfied that, according to the information available, the weather at the operating site or aerodrome would not prevent a safe take-off and departure.

NCO.OP.185 Simulated abnormal situations in flight

The pilot-in-command shall, when carrying passengers or cargo, not simulate:

(a) abnormal or emergency situations that require the application of abnormal or emergency procedures; or

(b) flight in instrument meteorological conditions (IMC) by artificial means.

NCO.OP.190 In-flight fuel management

The pilot-in-command shall check at regular intervals that the amount of usable fuel or ballast remaining in flight is not less than the fuel required to proceed, with the planned final reserve fuel remaining, to a weather-permissible aerodrome or operating site.

NCO.OP.195 Use of supplemental oxygen

The pilot-in-command shall ensure that when engaged in performing duties essential to the safe operation of an aircraft in flight use supplemental oxygen continuously whenever the cabin altitude exceeds 10 000 ft for a period of more than 30 minutes and whenever the cabin altitude exceeds 13 000 ft.

NCO.OP.200 Ground proximity detection

When undue proximity to the ground is detected by the pilot-in-command or by a ground proximity warning system, the pilot-in-command shall take corrective action immediately in order to establish safe flight conditions.

NCO.OP.205 Approach and landing conditions – aeroplanes and helicopters

Before commencing an approach to land, the pilot-in-command shall be satisfied that, according to the information available, the weather at the aerodrome or the operating site and the condition of the runway or FATO intended to be used would not prevent a safe approach, landing or missed approach.

NCO.OP.206 Approach and landing conditions – balloons and sailplanes

Before commencing an approach to land, the pilot-in-command shall be satisfied that, according to the information available, the weather at the intended operating site and the condition of the surface intended to be used would not prevent a safe approach and landing.

NCO.OP.210 Commencement and continuation of approach – aeroplanes and helicopters

(a) The pilot-in-command may commence an instrument approach regardless of the reported runway visual range / visibility (RVR/VIS).

(b) If the reported RVR/VIS is less than the applicable minimum, the approach shall not be continued:

(1) below 1 000 ft above the aerodrome; or

(2) into the final approach segment in the case where the decision altitude/height (DA/H) or minimum descent altitude/height (MDA/H) is more than 1 000 ft above the aerodrome.

(c) Where the RVR is not available, RVR values may be derived by converting the reported visibility.

(d) If, after passing 1 000 ft above the aerodrome, the reported RVR/VIS falls below the applicable minimum, the approach may be continued to DA/H or MDA/H.

(e) The approach may be continued below DA/H or MDA/H and the landing may be completed provided that the visual reference adequate for the type of approach operation and for the intended runway is established at the DA/H or MDA/H and is maintained.

(f) The touchdown zone RVR shall always be controlling.

NCO.OP.215 Operational limitations – hot-air balloons

A hot-air balloon may take-off during night, provided sufficient fuel is carried for a landing during day.

Subpart C – Performance and operating limitations

NCO.POL.100 Operating limitations

(a) During any phase of operation, the loading, the mass and, except for balloons, the centre of gravity (CG) position of the aircraft shall comply with any limitation specified in the AFM, or equivalent document.

(b) Placards, listings, instrument markings, or combinations thereof, containing those operating limitations prescribed by the AFM for visual presentation, shall be displayed in the aircraft.

NCO.POL.105 Weighing – aeroplanes and helicopters

(a) The operator shall ensure that the mass and centre of gravity of the aircraft have been established by actual weighing prior to initial entry into service, that the accumulated effects of modifications and repairs on the mass and balance are accounted for and properly documented and that such information is available to the pilot-in-command.

(b) The weighing shall be accomplished by the manufacturer of the aircraft or by an approved maintenance organisation.

(c) The operator shall ensure that the aircraft is reweighed if the effect of modifications on the mass and balance is not accurately known.

NCO.POL.110 Performance - general

(a) The pilot-in-command shall only operate the aircraft if the performance is adequate to comply with the applicable rules of the air and any other restrictions applicable to the flight, the airspace or the aerodromes or operating sites used, taking into account the charting accuracy of any charts and maps used.

(b) The pilot-in-command shall not operate the aircraft over the congested areas of cities, towns or settlements or over an open-air assembly of persons, if in the event of an engine failure a landing cannot be made without causing undue hazard to persons or property on the ground.

Subpart D - Instruments, data and equipment

Section 1 - Aeroplanes

NCO.IDE.A.100 Instruments and equipment – general

(a) Instruments and equipment required by this Part shall be approved in accordance with the applicable airworthiness requirements if they are:

(1) used by the flight crew to control the flight path, to comply with NCO.IDE.A.190 and NCO.IDE.A.195; or

(2) installed in the aeroplane.

(b) Instruments and equipment not required by this Part that do not fall under the requirements of (a) as well as any other equipment that is not required by other Parts, but is carried on a flight, shall comply with the following:

(1) the information provided by these instruments, equipment or accessories shall not be used by the flight crew to comply with Annex I to Regulation (EC) No 216/2008[2] or NCO.IDE.A.190 and NCO.IDE.A.195;

(2) the instruments and equipment shall not affect the airworthiness of the aeroplane, even in the case of failures or malfunction.

(c) Instruments and equipment shall be readily operable or accessible from the station where the flight crew member that needs to use it is seated.

(d) All required emergency equipment shall be easily accessible for immediate use.

NCO.IDE.A.105 Minimum equipment for flight

A flight shall not be commenced when any of the aeroplane instruments, items of equipment or functions required for the intended flight are inoperative or missing, unless:

(a) the aeroplane is operated in accordance with the minimum equipment list (MEL), if established; or

(b) the aeroplane is subject to a permit to fly issued in accordance with the applicable airworthiness requirements.

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[2] Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC. *OJ L 79, 19.3.2008, p. 1*, as amended by Regulation (EC) No 1108/2009 of the European Parliament and of the Council of 21 October 2009, *OJ L 309, 24.11.2009, p. 51*.

NCO.IDE.A.110 Spare electrical fuses

Aeroplanes shall be equipped with spare electrical fuses, of the ratings required for complete circuit protection, for replacement of those fuses that are allowed to be replaced in flight.

NCO.IDE.A.115 Operating lights

Aeroplanes operated at night shall be equipped with:

(a) an anti-collision light system;

(b) navigation/position lights;

(c) a landing light;

(d) lighting supplied from the aeroplane's electrical system to provide adequate illumination for all instruments and equipment essential to the safe operation of the aeroplane;

(e) lighting supplied from the aeroplane's electrical system to provide illumination in all passenger compartments;

(f) an independent portable light for each crew member station; and

(g) lights to conform with the International Regulations for Preventing Collisions at Sea if the aeroplane is operated as a seaplane.

NCO.IDE.A.120 Operations under VFR – flight and navigational instruments and associated equipment

(a) Aeroplanes operated under VFR by day shall be equipped with a means of measuring and displaying:

  (1) magnetic heading,

  (2) time, in hours, minutes and seconds,

  (3) pressure altitude,

  (4) indicated airspeed, and

  (5) Mach number, whenever speed limitations are expressed in terms of Mach number.

(b) Aeroplanes operating under visual meteorological conditions (VMC) at night, or in conditions where the aeroplane cannot be maintained in a desired attitude without reference to one or more additional instruments, shall be, in addition to (a), equipped with:

  (1) a means of measuring and displaying:

    (i) turn and slip,

    (ii) attitude,

    (iii) vertical speed, and

    (iv) stabilised heading; and

(2) a means of indicating when the supply of power to the gyroscopic instruments is not adequate;

(3) a means of preventing malfunction of the airspeed indicating system required in (a)(4) due to condensation or icing.

NCO.IDE.A.125 Operations under IFR – flight and navigational instruments and associated equipment

Aeroplanes operated under IFR shall be equipped with:

(a) A means of measuring and displaying:

(1) magnetic heading,

(2) time in hours, minutes and seconds,

(3) pressure altitude,

(4) indicated airspeed,

(5) vertical speed,

(6) turn and slip,

(7) attitude,

(8) stabilised heading.

(9) outside air temperature, and

(10) Mach number, whenever speed limitations are expressed in terms of Mach number.

(b) A means of indicating when the supply of power to the gyroscopic instruments is not adequate.

(c) A means of preventing malfunction of the airspeed indicating system required in (a)(4) due to condensation or icing.

NCO.IDE.A.130 Terrain awareness warning system (TAWS)

Turbine-powered aeroplanes with a maximum operational passenger seating configuration (MOPSC) of more than nine shall be equipped with a TAWS that meets the requirements for:

(a) class A equipment, as specified in an acceptable standard, in the case of aeroplanes for which the individual certificate of airworthiness (CofA) was first issued after 1 January 2011; or

(b) class B equipment, as specified in an acceptable standard, in the case of aeroplanes for which the individual CofA was first issued on or before 1 January 2011.

NCO.IDE.A.135 Flight crew interphone system

Aeroplanes operated by more than one flight crew member shall be equipped with a flight crew interphone system, including headsets and microphones for use by all flight crew members.

NCO.IDE.A.140 Seats, seat safety belts, restraint systems and child restraint devices

(a) Aeroplanes shall be equipped with:

(1) a seat or berth for each person on board who is aged 24 months or more;

(2) a seat belt on each passenger seat and restraining belts for each berth;

(3) a child restraint device (CRD) for each person on board younger than 24 months; and

(4) a seat belt with upper torso restraint system on each flight crew seat, having a single point release.

NCO.IDE.A.145 First-aid kit

(a) Aeroplanes shall be equipped with a first-aid kit.

(b) The first-aid kits shall be:

(1) readily accessible for use; and

(2) kept up-to-date.

NCO.IDE.A.150 Supplemental oxygen – pressurised aeroplanes

(a) Pressurised aeroplanes operated at flight altitudes for which the oxygen supply is required in accordance with (b) shall be equipped with oxygen storage and dispensing apparatus capable of storing and dispensing the required oxygen supplies.

(b) Pressurised aeroplanes operated above flight altitudes at which the pressure altitude in the passenger compartments is above 10 000 ft shall carry enough breathing oxygen to supply:

(1) all crew members and at least:

(i) 30 % of the passengers, for any period when, in the event of loss of pressurisation and taking into account the circumstances of the flight, the pressure altitude in the passenger compartment will be above between 14 000 ft and 15 000 ft; and

(ii) 10 % of the passengers for the remainder of the flight time when the pressure altitude in the passenger compartment will be between 10 000 ft and 14 000 ft, after the initial 30 minutes at these altitudes;

(2) all the occupants of the passenger compartment for no less than 10 minutes, in the case of aeroplanes operated at pressure altitudes above 25 000 ft, or operated below that altitude, but under conditions that will not allow them to descend safely to a pressure altitude of 13 000 ft within 4 minutes.

(c) Pressurised aeroplanes operated at flight altitudes above 25 000 ft shall, in addition, be equipped with a device to provide a warning indication to the flight crew of any loss of pressurisation.

NCO.IDE.A.155 Supplemental oxygen – non-pressurised aeroplanes

(a) Non-pressurised aeroplanes operated at flight altitudes when the oxygen supply is required in accordance with (b) shall be equipped with oxygen storage and dispensing apparatus capable of storing and dispensing the required oxygen supplies.

(b) Non-pressurised aeroplanes operated above flight altitudes at which the pressure altitude in the passenger compartments is above 10 000 ft shall carry enough breathing oxygen to supply:

(1) all crew members and at least 10 % of the passengers for any period in excess of 30 minutes when the pressure altitude in the passenger compartment will be between 10 000 ft and 13 000 ft; and

(2) all crew members and passengers for any period that the pressure altitude in the passenger compartment will be above 13 000 ft.

NCO.IDE.A.160 Hand fire extinguishers

(a) Aeroplanes, except touring motor gliders (TMG), shall be equipped with at least one hand fire extinguisher:

(1) in the flight crew compartment; and

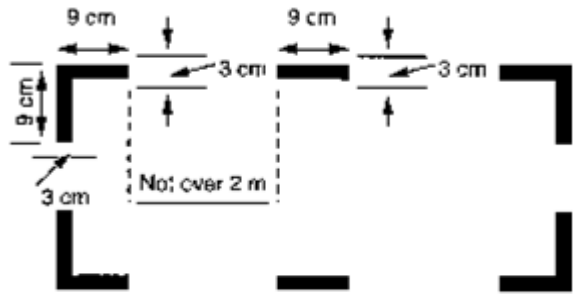
(2) in each passenger compartment that is separate from the flight crew compartment, except if the compartment is readily accessible to the flight crew.

(b) The type and quantity of extinguishing agent for the required fire extinguishers shall be suitable for the type of fire likely to occur in the compartment where the extinguisher is intended to be used and to minimise the hazard of toxic gas concentration in compartments occupied by persons.

NCO.IDE.A.165 Marking of break-in points

If areas of the aeroplane's fuselage suitable for break-in by rescue crews in an emergency are marked, such areas shall be marked as shown in Figure 1.

Figure 1: Marking of break-in points



NCO.IDE.A.170 Emergency locator transmitter (ELT)

(a) Aeroplanes shall be equipped with:

(1) an ELT of any type, when first issued with an individual CofA on or before 1 July 2008;

(2) an automatic ELT, when first issued with an individual CofA after 1 July 2008; or

(3) a personal locator beacon (PLB), carried by the pilot-in-command or a passenger, when having a MOPSC of six or less.

(b) ELTs of any type and PLBs shall be capable of transmitting simultaneously on 121.5 MHz and 406 MHz.

NCO.IDE.A.175 Flight over water

(a) The following aeroplanes shall be equipped with a life-jacket for each person on board, or equivalent individual floatation device for each person on board younger than 24 months, stowed in a position that is readily accessible from the seat or berth of the person for whose use it is provided:

(1) single-engined landplanes when:

(i) flying over water beyond gliding distance from the shore; or

(ii) taking off or landing at an aerodrome or operating site where, in the opinion of the pilot-in-command, the take-off or approach path is so disposed over water that there would be a likelihood of a ditching;

(2) seaplanes operated over water; and

(3) aeroplanes operated at a distance away from land where an emergency landing is possible greater than that corresponding to 30 minutes at normal cruising speed or 50 NM, whichever is less.

(b) Seaplanes operated over water shall be equipped with:

(1) one anchor;

(2) one sea anchor (drogue), when necessary to assist in manoeuvring; and

(3) equipment for making the sound signals, as prescribed in the International Regulations for Preventing Collisions at Sea, where applicable.

(c) The pilot-in-command of an aeroplane operated at a distance away from land where an emergency landing is possible greater than that corresponding to 30 minutes at normal cruising speed or 50 NM, whichever is the lesser, shall determine the risks to survival of the occupants of the aeroplane in the event of a ditching, based on which he/she shall determine the carriage of:

(1) equipment for making the distress signals;

(2) life-rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency; and

(3) life-saving equipment, to provide the means of sustaining life, as appropriate to the flight to be undertaken.

NCO.IDE.A.180 Survival equipment

Aeroplanes operated over 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 overflown.

NCO.IDE.A.190 Radio communication equipment

(a) Aeroplanes shall be equipped with radio communication equipment capable of conducting two-way communication with those aeronautical stations and on those frequencies to meet airspace requirements.

(b) Radio communication equipment, if required by (a), shall provide for communication on the aeronautical emergency frequency 121.5 MHz.

(c) When more than one communication equipment unit is required, 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.

NCO.IDE.A.195 Navigation equipment

(a) Aeroplanes operated over routes that cannot be navigated by reference to visual landmarks shall be equipped with any navigation equipment necessary to enable it to proceed in accordance with:

(1) the ATS flight plan; if applicable; and

(2) the applicable airspace requirements.

(b) Aeroplanes shall have sufficient 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 shall allow safe navigation in accordance with (a), or an appropriate contingency action, to be completed safely.

(c) Aeroplanes operated on flights in which it is intended to land in IMC shall be equipped with suitable equipment capable of providing guidance to a point from which a visual landing can be performed for each aerodrome at which it is intended to land in IMC and for any designated alternate aerodromes.

NCO.IDE.A.200 Transponder

Where required by the airspace being flown, aeroplanes shall be equipped with a secondary surveillance radar (SSR) transponder with all the required capabilities.

Section 2 - Helicopters

NCO.IDE.H.100 Instruments and equipment – general

(a) Instruments and equipment required by this Part shall be approved in accordance with the applicable airworthiness requirements if they are:

(1) used by the flight crew to control the flight path, to comply with NCO.IDE.H.190 and NCO.IDE.H.195; or

(2) installed in the helicopter.

(b) Instruments and equipment not required by this Part that do not fall under the requirements of (a), as well as any other equipment that is not required by other Parts, but is carried on a flight, shall comply with the following:

(1) the information provided by these instruments, equipment or accessories shall not be used by the flight crew to comply with Annex I to Regulation (EC) No 216/2008 or NCO.IDE.H.190 and NCO.IDE.H.195; and

(2) the instruments and equipment shall not affect the airworthiness of the helicopter, even in the case of failures or malfunction.

(c) Instruments and equipment shall be readily operable or accessible from the station where the flight crew member that needs to use it is seated.

(d) All required emergency equipment shall be easily accessible for immediate use.

NCO.IDE.H.105 Minimum equipment for flight

A flight shall not be commenced when any of the helicopter’s instruments, items of equipment or functions required for the intended flight are inoperative or missing, unless:

(a) the helicopter is operated in accordance with the minimum equipment list (MEL), if established; or

(b) the helicopter is subject to a permit to fly issued in accordance with the applicable airworthiness requirements.

NCO.IDE.H.115 Operating lights

Helicopters operated at night shall be equipped with:

(a) an anti-collision light system;

(b) navigation/position lights;

(c) a landing light;

(d) lighting supplied from the helicopter's electrical system to provide adequate illumination for all instruments and equipment essential to the safe operation of the helicopter;

(e) lighting supplied from the helicopter's electrical system to provide illumination in all passenger compartments;

(f) an independent portable light for each crew member station; and

(g) lights to conform with the International Regulations for Preventing Collisions at Sea if the helicopter is amphibious.

NCO.IDE.H.120 Operations under VFR – flight and navigational instruments and associated equipment

(a) Helicopters operated under VFR by day shall be equipped with a means of measuring and displaying:

(1) magnetic heading,

(2) time in hours, minutes and seconds,

(3) pressure altitude,

(4) indicated airspeed, and

(5) slip.

(b) Helicopters operated under VMC at night, when the visibility is less than 1 500 m, or in conditions where the helicopter cannot be maintained in a desired attitude without reference to one or more additional instruments, shall be, in addition to (a), equipped with:

(1) a means of measuring and displaying:

(i) attitude,

(ii) vertical speed, and

(iii) stabilised heading; and

(2) a means of indicating when the supply of power to the gyroscopic instruments is not adequate;

(3) a means of preventing malfunction of the airspeed indicating system required in (a)(4) due to condensation or icing.

NCO.IDE.H.125 Operations under IFR – flight and navigational instruments and associated equipment

Helicopters operated under IFR shall be equipped with:

(a) a means of measuring and displaying:

(1) magnetic heading,

(2) time in hours, minutes and seconds,

(3) pressure altitude,

(4) indicated airspeed,

(5) vertical speed,

(6) slip,

(7) attitude,

(8) stabilised heading, and

(9) outside air temperature;

(b) indication of when the supply of power to the gyroscopic instruments is not adequate;

(c) a means of preventing malfunction of the airspeed indicating system required by (a)(4) due to condensation or icing; and

(d) an additional means of measuring and displaying attitude as a standby instrument.

NCC.IDE.H.126 Additional equipment for single pilot operation under IFR

Helicopters operated under IFR with a single pilot shall be equipped with an autopilot with at least altitude hold and heading mode.

NCO.IDE.H.135 Flight crew interphone system

Helicopters operated by more than one flight crew member shall be equipped with a flight crew interphone system, including headsets and microphones for use by all flight crew members.

NCO.IDE.H.140 Seats, seat safety belts, restraint systems and child restraint devices

(a) Helicopters shall be equipped with:

(1) a seat or berth for each person on board who is aged 24 months or more;

(2) a seat belt on each passenger seat and restraining belts for each berth;

(3) for helicopters first issued with an individual CofA after 31 July 1999, a seat belt with an upper torso restraint system for each passenger who is aged 24 months or more;

(4) a child restraint device for each person on board younger than 24 months; and

(5) a seat belt with upper torso restraint system incorporating a device that will automatically restrain the occupant's torso in the event of rapid deceleration on each flight crew seat.

(b) A seat belt with upper torso restraint system shall have a single point release.

NCO.IDE.H.145 First-aid kit

(a) Helicopters shall be equipped with a first-aid kit.

(b) The first-aid kit shall be:

(1) readily accessible for use; and

(2) kept up-to-date.

NCO.IDE.H.155 Supplemental oxygen – non-pressurised helicopters

(a) Non-pressurised helicopters operated at flight altitudes when the oxygen supply is required in accordance with (b) shall be equipped with oxygen storage and

dispensing apparatus capable of storing and dispensing the required oxygen supplies.

(b) Non-pressurised helicopters operated above flight altitudes at which the pressure altitude in the passenger compartments is above 10 000 ft shall carry enough breathing oxygen to supply:

(1) all crew members and at least 10 % of the passengers for any period in excess of 30 minutes when the pressure altitude in the passenger compartment will be between 10 000 ft and 13 000 ft; and

(2) all crew members and passengers for any period that the pressure altitude in the passenger compartment will be above 13 000 ft.

NCO.IDE.H.160 Hand fire extinguishers

(a) Helicopters shall be equipped with at least one hand fire extinguisher:

(1) in the flight crew compartment; and

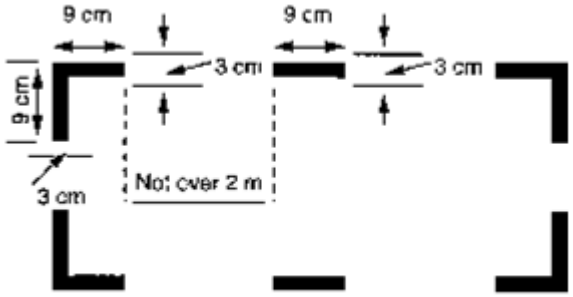
(2) in each passenger compartment that is separate from the flight crew compartment, except if the compartment is readily accessible to the flight crew.

(b) The type and quantity of extinguishing agent for the required fire extinguishers shall be suitable for the type of fire likely to occur in the compartment where the extinguisher is intended to be used and to minimise the hazard of toxic gas concentration in compartments occupied by persons.

NCO.IDE.H.165 Marking of break-in points

If areas of the helicopter's fuselage suitable for break-in by rescue crews in an emergency are marked, such areas shall be marked as shown in Figure 1.

Figure 1: Marking of break-in points



NCO.IDE.H.170 Emergency locator transmitter (ELT)

(a) Helicopters having an MOPSC above six shall be equipped with:

(1) an automatic ELT; and

(2) one survival ELT (ELT(S)) in a life-raft or life-jacket when the helicopter is operated at a distance from the shore corresponding to more than 3 minutes flying time at normal cruising speed.

(b) Helicopters having a MOPSC of six or less shall be equipped with a personal locator beacon (PLB), carried by the pilot-in-command or a passenger.

(c) ELTs of any type and PLBs shall be capable of transmitting simultaneously on 121.5 MHz and 406 MHz.

NCO.IDE.H.175 Flight over water

(a) Helicopters shall be equipped with a life-jacket for each person on board, or equivalent individual flotation device for each person on board younger than 24 months, stowed in a position that is readily accessible from the seat or berth of the person for whose use it is provided, when:

(1) flying over water beyond autorotational distance from the shore; or

(2) taking off or landing at an aerodrome/operating site where the take-off or approach path is over water.

(b) Each life-jacket or equivalent individual flotation device shall be equipped with a means of electric illumination for the purpose of facilitating the location of persons.

(c) The pilot-in-command of a helicopter operated on a flight over water at a distance from land corresponding to more than 30 minutes flying time at normal cruising speed or 50 NM, whichever is less, shall determine the risks to survival of the occupants of the helicopter in the event of a ditching, based on which he/she shall determine the carriage of:

(1) equipment for making the distress signals;

(2) life-rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency; and

(3) life-saving equipment, to provide the means of sustaining life, as appropriate to the flight to be undertaken.

(d) The pilot-in-command of a helicopter shall determine the risks to survival of the occupants of the helicopter in the event of a ditching, when deciding if the life-jackets required in (a) shall be worn by all occupants.

NCO.IDE.H.180 Survival equipment

Helicopters, operated over 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 overflown.

NCO.IDE.H.185 All helicopters on flights over water - ditching

Helicopters flying over water in a hostile environment beyond a distance of 50 NM from the shore shall be:

(a) designed for landing on water in accordance with the relevant airworthiness code;

(b) certified for ditching in accordance with the relevant airworthiness code; or

(c) fitted with emergency flotation equipment.

NCO.IDE.H.190 Radio communication equipment

(a) Helicopters shall be equipped with radio communication equipment capable of conducting two-way communication with those aeronautical stations and on those frequencies to meet airspace requirements.

(b) Radio communication equipment, if required by (a), shall provide for communication on the aeronautical emergency frequency 121.5 MHz.

(c) When more than one communications equipment unit is required, 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.

(d) When a radio communication system is required, and in addition to the flight crew interphone system required in NCO.IDE.H.135, helicopters shall be equipped with a transmit button on the flight controls for each required pilot and/or crew member at his/her working station.

NCO.IDE.H.195 Navigation equipment

(a) Helicopters operated over routes that cannot be navigated by reference to visual landmarks shall be equipped with navigation equipment that will enable them to proceed in accordance with:

(1) the ATS flight plan, if applicable; and

(2) the applicable airspace requirements.

(b) Helicopters shall have sufficient 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 shall allow safe navigation in accordance with (a), or an appropriate contingency action, to be completed safely.

(c) Helicopters operated on flights in which it is intended to land in IMC shall be equipped with navigation equipment capable of providing guidance to a point from which a visual landing can be performed for each aerodrome at which it is intended to land in IMC and for any designated alternate aerodromes.

NCO.IDE.H.200 Transponder

Where required by the airspace being flown, helicopters shall be equipped with a secondary surveillance radar (SSR) transponder with all the required capabilities.

Section 3 - Sailplanes

NCO.IDE.S.100 Instruments and equipment – general

(a) Instruments and equipment required by this Part shall be approved in accordance with the applicable airworthiness requirements if they are:

(1) used by the flight crew to control the flight path, to comply with NCO.IDE.S.145 and NCO.IDE.S.150; or

(2) installed in the sailplane.

(b) Instruments and equipment not required by this Part that do not fall under the requirements of (a) as well as any other equipment that is not required by other Parts, but is carried on a flight, shall comply with the following:

(1) the information provided by these instruments, equipment or accessories shall not be used by the flight crew to comply with Annex I to Regulation (EC) No 216/2008; and

(2) the instruments and equipment shall not affect the airworthiness of the sailplane, even in the case of failures or malfunction.

(c) Instruments and equipment shall be readily operable or accessible from the station where the flight crew member that needs to use it is seated.

(d) All required emergency equipment shall be easily accessible for immediate use.

NCO.IDE.S.105 Minimum equipment for flight

A flight shall not be commenced when any of the sailplane instruments, items of equipment or functions required for the intended flight are inoperative or missing, unless:

(a) the sailplane instrument, item of equipment or function is not required by the AFM; or

(b) the sailplane is subject to a permit to fly issued in accordance with the applicable airworthiness requirements.

NCO.IDE.S.115 Operations under VFR – flight and navigational instruments

(a) Sailplanes operated under VFR by day shall be equipped with a means of measuring and displaying:

(1) in the case of powered sailplanes, magnetic heading,

(2) time in hours, minutes and seconds,

(3) pressure altitude, and

(4) indicated airspeed.

(b) Sailplanes operating in conditions where the sailplane cannot be maintained in a desired attitude without reference to one or more additional instruments, shall be, in addition to (a), equipped with a means of measuring and displaying:

(1) vertical speed,

(2) attitude or turn and slip, and

(3) magnetic heading.

NCO.IDE.S.120 Cloud flying – flight and navigational instruments

Sailplanes performing cloud flying shall be equipped with a means of measuring and displaying:

(a) magnetic heading,

(b) time in hours, minutes and seconds,

(c) pressure altitude,

(d) indicated airspeed,

(e) vertical speed, and

(f) attitude or turn and slip.

NCO.IDE.S.125 Seats and restraint systems

(a) Sailplanes shall be equipped with:

(1) a seat for each person on board; and

(2) a seat belt with upper torso restraint system for each seat according to the AFM.

(b) A seat belt with upper torso restraint system shall have a single point release.

NCO.IDE.S.130 Supplemental oxygen

Sailplanes operated at pressure altitudes above 10 000 ft shall be equipped with an oxygen storage and dispensing apparatus carrying enough breathing oxygen to supply:

(a) crew members for any period in excess of 30 minutes when the pressure altitude will be between 10 000 ft and 13 000 ft; and

(b) all crew members and passengers for any period that the pressure altitude will be above 13 000 ft.

NCO.IDE.S.135 Flight over water

The pilot-in-command of a sailplane operated over water shall determine the risks to survival of the occupants of the sailplane in the event of a ditching, based on which he/she shall determine the carriage of:

(a) a life-jacket, or equivalent individual floatation device, for each person on board, stowed in a position that is readily accessible from the seat of the person for whose use it is provided;

(b) an emergency locator transmitter (ELT) or a personal locator beacon (PLB), carried by the pilot-in-command or a passenger, capable of transmitting simultaneously on 121.5 MHz and 406 MHz; and

(c) equipment for making distress signals, when operating a flight:

(1) over water beyond gliding distance from the shore; or

(2) where the take-off or approach path is so disposed over water that in the event of a mishap there would be a likelihood of ditching.

NCO.IDE.S.140 Survival equipment

Sailplanes operated over areas in which search and rescue would be especially difficult shall be equipped with such signalling devices and life-saving equipment as appropriate to the area overflown.

NCO.IDE.S.145 Radio communication equipment

(a) Sailplanes shall be equipped with radio communication equipment capable of conducting two-way communication with those aeronautical stations or those frequencies to meet airspace requirements.

(b) Radio communication equipment, if required by (a), shall provide for communication on the aeronautical emergency frequency 121.5 MHz.

NCO.IDE.S.150 Navigation equipment

Sailplanes shall be equipped with any navigation equipment necessary to proceed in accordance with:

(a) the ATS flight plan if applicable; and

(b) the applicable airspace requirements.

NCO.IDE.S.155 Transponder

When required by the airspace being flown, sailplanes shall be equipped with a secondary surveillance radar (SSR) transponder with all the required capabilities.

Section 4 - Balloons

NCO.IDE.B.100 Instruments and equipment – general

(a) Instruments and equipment required by this Part shall be approved in accordance with the applicable airworthiness requirements if they are:

(1) used by the flight crew to determine the flight path, to comply with NCO.IDE.B.145; or

(2) installed in the balloon.

(b) Instruments and equipment not required by this Part that do not fall under the requirements of (a) as well as any other equipment that is not required by other Parts, but is carried on a flight, shall comply with the following:

(1) the information provided by these instruments, equipment or accessories shall not be used by the flight crew to comply with Annex I to Regulation (EC) No 216/2008; and

(2) the instruments and equipment shall not affect the airworthiness of the balloon, even in the case of failures or malfunction.

(c) Instruments and equipment shall be readily operable or accessible from the station where the flight crew member that needs to use it is assigned.

(d) All required emergency equipment shall be easily accessible for immediate use.

NCO.IDE.B.105 Minimum equipment for flight

A flight shall not be commenced when any of the balloon instruments, items of equipment or functions required for the intended flight are inoperative, unless:

(a) the balloon is operated in accordance with the minimum equipment list (MEL), if established; or

(b) the balloon is subject to a permit to fly issued in accordance with the applicable airworthiness requirements.

NCO.IDE.B.110 Operating lights

Balloons operated at night shall be equipped with:

(a) position lights;

(b) a means to provide adequate illumination for all instruments and equipment essential to the safe operation of the balloon;

(c) an independent portable light; and

(d) for hot airships:

(1) a landing light, and

(2) an anti-collision light.

NCO.IDE.B.115 Operations under VFR – flight and navigational instruments and associated equipment

Balloons operated under VFR by day shall be equipped with:

(a) a means of displaying drift direction; and

(b) a means of measuring and displaying:

(1) time in hours, minutes and seconds;

(2) vertical speed; and

(3) pressure altitude, if applicable.

NCC.IDE.B.120 First-aid kit

(a) Balloons shall be equipped with a first-aid kit.

(b) The first-aid kit shall be:

(1) readily accessible for use; and

(2) kept up-to-date.

NCO.IDE.B.121 Supplemental oxygen

Balloons operated at pressure altitudes above 10 000 ft shall be equipped with an oxygen storage and dispensing apparatus carrying enough breathing oxygen to supply:

(a) crew members for any period in excess of 30 minutes when the pressure altitude will be between 10 000 ft and 13 000 ft; and

(b) all crew members and passengers for any period that the pressure altitude will be above 13 000 ft.

NCO.IDE.B.125 Hand fire extinguishers

(a) Balloons shall be equipped with at least one hand fire extinguisher.

(b) The type and quantity of extinguishing agent for the required fire extinguishers shall be suitable for the type of fire likely to occur in the balloon where the extinguisher is intended to be used and to minimise the hazard of toxic gas concentration for the occupants of the balloon.

NCO.IDE.B.130 Flight over water

The pilot-in-command of a balloon operated over water shall determine the risks to survival of the occupants of the balloon in the event of a ditching, based on which he/she shall determine the carriage of:

(a) a life-jacket for each person on board, or equivalent individual floatation device for each person on board younger than 24 months, stowed in a position that is readily accessible from the station of the person for whose use it is provided;

(b) an emergency locator transmitter (ELT) or a personal locator beacon (PLB), carried by the pilot-in-command or a passenger, capable of transmitting simultaneously on 121.5 MHz and 406 MHz; and

(c) equipment for making the distress signals.

NCO.IDE.B.135 Survival equipment

Balloons operated over areas in which search and rescue would be especially difficult shall be equipped with such signalling devices and life-saving equipment as appropriate to the area overflown.

NCO.IDE.B.140 Miscellaneous equipment

Hot-air balloons and mixed balloons shall be equipped with:

(a) an alternative source of ignition;

(b) a means of indicating excessive envelope temperature;

(c) a means of measuring and indicating fuel quantity;

(d) protective gloves for each crew member;

(e) a hook knife;

(f) a fire blanket or fire resistant cover; and

(g) a drop line of at least 25 metres (m) in length.

NCO.IDE.B.145 Radio communication equipment

(a) Balloons shall be equipped with radio communication equipment capable of conducting two-way communication with those aeronautical stations or those frequencies to meet airspace requirements.

(b) Radio communication equipment, if required by (a), shall provide for communication on the aeronautical emergency frequency 121.5 MHz.

NCO.IDE.B.150 Transponder

When required by the airspace being flown, balloons shall be equipped with a secondary surveillance radar (SSR) transponder with all the required capabilities.

Part-NCO – AMC/GM

Subpart A - General requirements

GM1-NCO.GEN.105 Pilot-in-command responsibilities and authority

GENERAL

In accordance with 1.c. of Annex IV to Regulation (EC) No 216/2008[3] (Essential Requirements for air operations), the pilot-in-command is responsible for the operation and safety of the aircraft and for the safety of all passengers and cargo on board. This includes the following:

1. the safety of all passengers and cargo on board, as soon as he/she arrives on board, until he/she leaves the aircraft at the end of the flight; and
2. the operation and safety of the aircraft:
    a. from the moment it is first ready to move for the purpose of flight until the moment it comes to rest at the end of the flight and the engine(s) used as primary propulsion unit(s) is/are shut down, for aeroplanes;
    b. when the rotors start turning for the purpose of flight until the rotors come to a complete stop after flight, for helicopters;
    c. from the moment the launch procedure is started until the aircraft comes to rest at the end of the flight, for sailplanes; or
    d. from the moment the inflating of the envelope is started until the envelope is deflated, for balloons.

GM1-NCO.GEN.105(a)(8) Pilot-in-command responsibilities and authority

RECORDING UTILISATION DATA

Where an aircraft conducts a series of flights of short duration – such as a helicopter doing a series of lifts – and the aircraft is operated by the same pilot-in-command, the utilisation data for the series of flights may be recorded in the aircraft technical log or journey log as a single entry.

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[3] Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC. *OJ L 79, 19.3.2008, p. 1,* as amended by Regulation (EC) No 1108/2009 of the European Parliament and of the Council of 21 October 2009, *OJ L 309, 24.11.2009, p. 51*.

GM1-NCO.GEN.105(c) Pilot-in-command responsibilities and authority

REPORTING OF HAZARDOUS FLIGHT CONDITIONS

1. These reports should include any detail which may be pertinent to the safety of other aircraft.
2. Such reports should be made whenever any of the following conditions are encountered or observed:
   a. severe turbulence;
   b. severe icing;
   c. severe mountain wave;
   d. thunderstorms, with or without hail, that are obscured, embedded, widespread or in squall lines;
   e. heavy dust storm or heavy sandstorm;
   f. volcanic ash cloud; and
   g. unusual and/or increasing volcanic activity or a volcanic eruption.
3. When other meteorological conditions not listed above, e.g. wind shear, are encountered that, in the opinion of the pilot-in-command, may affect the safety or the efficiency of other aircraft operations, the pilot-in-command should advise the appropriate air traffic services (ATS) unit as soon as practicable.

GM1-NCO.GEN.106(c) Pilot-in-command responsibilities and authority - balloons

PROTECTIVE CLOTHING

Protective clothing includes:

1. long sleeves and trousers made out of natural fibres or mixed fibres;
2. stout footwear; and
3. gloves.

AMC1-NCO.GEN.110 Compliance with laws, regulations and procedures

GENERAL

If required by the State in which the incident occurs, the pilot-in-command should submit a report on any such violation to the appropriate authority of such a State; in that event, the pilot-in-command should also submit a copy of it to the competent authority. Such reports should be submitted as soon as possible and normally within ten days.

GM1-NCO.GEN.120 Rotor engagement

INTENT OF THE RULE

1. The following two situations where it is allowed to turn the rotor under power should be distinguished:
   a. for the purpose of flight, this is described in the implementing rule;
   b. for maintenance purposes.
2. Rotor engagement for the purpose of flight: it should be noted that the pilot should not leave the control when the rotors are turning. For example, the pilot is not allowed to get out of the aircraft in order to welcome passengers and adjust their seat belts with the rotors turning.
3. Rotor engagement for the purpose of maintenance: the implementing rule, however, should not prevent ground runs being conducted by qualified personnel other than pilots for maintenance purposes.

   The following conditions should be applied:
   a. The operator should ensure that the qualification of personnel, other than pilots, who are authorised to conduct maintenance runs, is described in the appropriate manual.
   b. Ground runs should not include taxiing the helicopter.
   c. There should be no passengers on board.
   d. Maintenance runs should not include collective increase or auto pilot engagement (risk of ground resonance).

GM1-NCO.GEN.125 Portable electronic devices

GENERAL

1. Interference can result in:
   a. malfunctioning of multiple systems;
   b. false warnings of unsafe conditions;
   c. increased work load for the flight crew and the possibility of invoking emergency drills;
   d. reduced crew confidence in protection systems which may then be ignored during a genuine warning;
   e. distraction of the flight crew from their normal duties;
   f. noise in the flight crew headphones; and/or
   g. hidden failures of safety systems with loss of protection.
2. Recommendations:
   a. Aircraft operators should consider installing detectors in their aircraft, which together with suitable procedures can assist the cabin crew to detect unauthorised transmissions from commonly used types of cell phone.

b. Aircraft operators should seek the assistance of airport operators for the display of safety notices at aircraft boarding points reminding passengers to switch off cell phones and other transmitting devices.

AMC1-NCO.GEN.130 Information on emergency and survival equipment carried

CONTENT OF INFORMATION

The information should include, as applicable, the number, colour and type of life rafts and pyrotechnics, details of emergency medical supplies, water supplies and the type and frequencies of the emergency portable radio equipment.

AMC1-NCO.GEN.135 Documents, manuals and information to be carried

CURRENT AND SUITABLE AERONAUTICAL CHARTS

1. The aeronautical charts carried should contain data appropriate to the applicable air traffic regulations, rules of the air, flight altitudes, area/route and nature of the operation. Due consideration should be given to carriage of textual and graphic representations of:
   a. aeronautical data including, as appropriate for the nature of the operation:
      i. airspace structure;
      ii. significant points, navigation aids (navaids) and air traffic services (ATS) routes;
      iii. navigation and communication frequencies;
      iv. prohibited, restricted and danger areas; and
      v. sites of other relevant activities that may hazard the flight; and
   b. topographical data, including terrain and obstacle data.
2. A combination of different charts and textual data may be used to provide adequate and current data.
3. The required aeronautical data should be appropriate for the current aeronautical information regulation and control (AIRAC) cycle.
4. The required topographical data should be reasonably recent, having regard to the nature of the planned operation.

GM1-NCO.GEN.135 Documents, manuals and information to be carried

GENERAL

1. In case of loss or theft of documents specified in NCO.GEN.135, the operation may continue until the flight reaches the base or a place where a replacement document can be provided.
2. The documents, manuals and information may be available in a form other than on printed paper. Accessibility, usability and reliability should be assured. A commonly used format on an electronic storage medium is acceptable.

3. 'Aircraft flight manual (AFM), or equivalent document' means the flight manual for the aircraft or other documents containing information required for the operation of the aircraft within the terms of its certificate of airworthiness.
4. The procedures and the visual signals information for use by intercepting and intercepted aircraft are those contained in Annex 2 to the International Civil Aviation Organisation Convention.
5. Any other documents that may be pertinent to the flight or required by the States concerned with the flight may include, for example, forms to comply with reporting requirements.

DOCUMENTS THAT MAY BE PERTINENT TO THE FLIGHT

Any other documents that may be pertinent to the flight or required by the States concerned with the flight may include, for example, forms to comply with reporting requirements.

STATES CONCERNED WITH THE FLIGHT

The States concerned are those of origin, transit, overflight and destination of the flight.

SEARCH AND RESCUE INFORMATION

This information is usually to be found in the State's aeronautical information publication (AIP).

AMC1-NCO.GEN.140(e) Transport of dangerous goods

DANGEROUS GOODS ACCIDENT AND INCIDENT REPORTING

1. Any type of dangerous goods incident or accident should be reported. For this purpose, the Technical Instructions consider that reporting of undeclared and misdeclared dangerous goods found in cargo also applies to items of operators' stores that are classified as dangerous goods.
2. The first report should be dispatched within 72 hours of the event. It may be sent by any means, including e-mail, telephone or fax. This report should include the details that are known at that time, under the headings identified in 3. If necessary, a subsequent report should be made as soon as possible giving all the details that were not known at the time the first report was sent. If a report has been made verbally, written confirmation should be sent as soon as possible.
3. The first and any subsequent report should be as precise as possible and contain the following data, where relevant:
    a. date of the incident or accident or the finding of undeclared or misdeclared dangerous goods;
    b. location, the flight number and flight date;
    c. description of the goods;
    d. proper shipping name (including the technical name, if appropriate) and United Nations (UN) / identification (ID) number, when known;
    e. class or division and any subsidiary risk;

f. type of packaging, and the packaging specification marking on it;

g. quantity;

h. name and address of the shipper, passenger, etc.;

i. any other relevant details;

j. suspected cause of the incident or accident;

k. action taken;

l. any other reporting action taken; and

m. name, title, address and telephone number of the person making the report.

4. Copies of relevant documents and any photographs taken should be attached to the report.

5. A dangerous goods accident or incident may also constitute an aircraft accident, serious incident or incident. The criteria for reporting both types of occurrence should be met.

6. The following dangerous goods reporting form should be used, but other forms, including electronic transfer of data, may be used provided that at least the minimum information of this AMC is supplied:

<table>
<tr><td colspan="3">DANGEROUS GOODS OCCURRENCE REPORT</td><td>DGOR No:</td></tr>
<tr><td>1. Operator:</td><td colspan="2">2. Date of Occurrence:</td><td>3. Local time of occurrence:</td></tr>
<tr><td colspan="2">4. Flight date:</td><td colspan="2">5. Flight No:</td></tr>
<tr><td colspan="2">6. Departure aerodrome:</td><td colspan="2">7. Destination aerodrome:</td></tr>
<tr><td colspan="2">8. Aircraft type:</td><td colspan="2">9. Aircraft registration:</td></tr>
<tr><td colspan="2">10. Location of occurrence:</td><td colspan="2">11. Origin of the goods:</td></tr>
<tr><td colspan="4">12. Description of the occurrence, including details of injury, damage, etc.
(if necessary continue on the reverse of this form):</td></tr>
<tr><td colspan="3">13. Proper shipping name (including the technical name):</td><td>14. UN/ID No (when known):</td></tr>
<tr><td>15.Class/Division (when known):</td><td>16. Subsidiary risk(s):</td><td>17. Packing group:</td><td>18 Category (Class 7 only):</td></tr>
<tr><td>19. Type of packaging:</td><td>20. Packaging specification marking:</td><td>21. No of packages:</td><td>22. Quantity (or transport index, if applicable):</td></tr>
</table>

23. Reference no of airway bill:	
24. Reference no of courier pouch, baggage tag, or passenger ticket:	
25. Name and address of shipper, agent, passenger, etc.:	
26. Other relevant information (including suspected cause, any action taken):	
27. Name and title of person making report:	28. Telephone No:
29. Company:	30. Reporters ref:
31. Address:	32. Signature:
	33. Date:
Description of the occurrence (continuation)	

Notes for completion of the form:

1. Any type of dangerous goods occurrence should be reported, irrespective of whether the dangerous goods are contained in cargo, mail or baggage.
2. For this purpose serious injury is an injury that is sustained by a person in an accident and that:
   a. requires hospitalisation for more than 48 hours, commencing within 7 days from the date the injury was received;
   b. results in a fracture of any bones (except simple fractures of fingers, toes or nose);
   c. involves lacerations that cause severe haemorrhage, nerve, muscle or tendon damage;
   d. involves injury to any internal organ;
   e. involves second or third degree burns, or any burns affecting more than 5 % of the body surface; or
   f. involves verified exposure to infectious substances or injurious radiation.

   A dangerous goods accident may also be an aircraft accident; in which case the normal procedure for reporting of air accidents should be followed.
3. This form should also be used to report any occasion when undeclared or misdeclared dangerous goods are discovered in cargo, mail or unaccompanied baggage or when accompanied baggage contains dangerous goods that passengers are not permitted to take on aircraft.

4. An initial report, which may be made by any means, should be dispatched within 72 hours of the occurrence, to the competent authority; and to the authority of the State in which the incident occurred, unless exceptional circumstances prevent this. The occurrence report form, duly completed, should be sent as soon as possible, even if all the information is not available.

5. Copies of all relevant documents and any photographs should be attached to this report.

6. Any further information, or any information not included in the initial report, should be sent as soon as possible to the authorities identified in 5.

7. Providing it is safe to do so, all dangerous goods, packagings, documents, etc., relating to the occurrence should be retained until after the initial report has been sent to the authorities identified in 5. and they have indicated whether or not these should continue to be retained.

GM1-NCO.GEN.140(a) Transport of dangerous goods

GENERAL

1. The requirement to transport dangerous goods by air in accordance with the Technical Instructions is irrespective of whether:

   a. the flight is wholly or partly within or wholly outside the territory of a State; or

   b. an approval to carry dangerous goods in accordance with SPA.DG is held.

2. The Technical Instructions provide that in certain circumstances dangerous goods, which are normally forbidden on an aircraft, may be carried. These circumstances include cases of extreme urgency, when other forms of transport are inappropriate or when full compliance with the prescribed requirements is contrary to the public interest. In these circumstances all the States concerned may grant exemptions from the provisions of the Technical Instructions provided that an overall level of safety that is at least equivalent to that provided by the Technical Instructions is achieved. Although exemptions are most likely to be granted for the carriage of dangerous goods that are not permitted in normal circumstances, they may also be granted in other circumstances, such as when the packaging to be used does not conform with the appropriate packing method or the quantity in the packaging is greater than that permitted. The Technical Instructions also make provision for some dangerous goods to be carried when an approval has been granted only by the State of Origin and the competent authority.

3. When an exemption is required, the States concerned are those of origin, transit, overflight and destination of the consignment and that of the operator. For the State of overflight, if none of the criteria for granting an exemption are relevant, an exemption may be granted based solely on whether it is believed that an equivalent level of safety in air transport has been achieved.

4. The Technical Instructions provide that exemptions and approvals are granted by the 'appropriate national authority', which is intended to be the authority responsible for the particular aspect against which the exemption or approval is being sought. The Technical Instructions do not specify who should seek

exemptions and, depending on the legislation of the particular State, this may mean the operator, the shipper or an agent. If an exemption or approval has been granted to other than the operator, the operator should ensure a copy has been obtained before the relevant flight. The operator should ensure that all relevant conditions on an exemption or approval are met.

5. The exemption or approval referred to in 2. to 4. is in addition to the approval required by SPA.DG.100.

AMC1-NCO.GEN.150 Journey log

GENERAL

1. The aircraft journey log, or equivalent, should include the following items, where applicable:
   a. aircraft nationality and registration;
   b. date;
   c. name of crew member(s);
   d. duty assignments of crew members, if applicable;
   e. place of departure
   f. place of arrival;
   g. time of departure;
   h. time of arrival;
   i. hours of flight;
   j. nature of flight;
   k. incidents and observations (if any); and
   l. signature of the pilot-in-command.
2. The information or parts thereof may be recorded in a form other than on printed paper. Accessibility, usability and reliability should be assured.
3. 'Journey log or equivalent' means that the required information may be recorded in documentation other than a log book, such as the operational flight plan or the aircraft technical log.

AMC1-NCO.GEN.155 Minimum equipment list

CONTENT AND APPROVAL OF THE MEL

1. When an MEL is established, the operator should amend the MEL after any applicable change to the MMEL within the acceptable timescales.
2. The MEL should contain:
   a. a preamble, including guidance and definitions for flight crews and maintenance personnel using the MEL;
   b. the revision status of the MMEL upon which the MEL is based and the revision status of the MEL; and

c. the scope, extent and purpose of the MEL.

3. The operator should:

   a. establish rectification intervals for each inoperative instrument, item of equipment or function listed in the MEL. The rectification interval in the MEL should not be less restrictive than the corresponding rectification interval in the MMEL;

   b. establish an effective rectification programme; and

   c. only operate the aircraft after expiry of the rectification interval specified in the MEL when:

      i. the defect has been rectified; or

      ii. the rectification interval has been extended in accordance with 4.

4. Subject to approval of the competent authority, or the State of Registry of the aircraft as applicable, the operator may use a procedure for the one time extension of category B, C and D rectification intervals, provided that:

   a. the extension of the rectification interval is within the scope of the MMEL for the aircraft type;

   b. the extension of the rectification interval is, as a maximum, of the same duration as the rectification interval specified in the MEL;

   c. the rectification interval extension is not used as a normal means of conducting MEL item rectification and is used only when events beyond the control of the operator have precluded rectification;

   d. a description of specific duties and responsibilities for controlling extensions is established by the operator;

   e. the competent authority is notified of any extension of the applicable rectification interval; and

   f. a plan to accomplish the rectification at the earliest opportunity is established.

5. The operator should establish the operational and maintenance procedures referenced in the MEL taking into account the operational and maintenance procedures referenced in the MMEL. These procedures should be part of the operator's manuals or the MEL.

6. The operator should amend the operational and maintenance procedures referenced in the MEL after any applicable change to the operational and maintenance procedures referenced in the MMEL.

7. Unless otherwise specified in the MEL, the operator should complete:

   a. the operational procedures referenced in the MEL when planning for and/or operating with the listed item inoperative; and

   b. the maintenance procedures referenced in the MEL prior to operating with the listed item inoperative.

Subpart B – Operational procedures

GM1-NCO.OP.100 Use of aerodromes and operating sites

BALLOONS

An adequate site is a site that the pilot-in-command considers to be satisfactory, taking account of the applicable performance requirements and site characteristics.

AMC1-NCO.OP.110 Aerodrome operating minima – aeroplanes and helicopters

TAKE-OFF OPERATIONS

1. General:
    a. Take-off minima should be expressed as visibility (VIS) or runway visual range (RVR) limits, taking into account all relevant factors for each aerodrome planned to be used and aircraft 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, it should be specified.
    b. When the reported meteorological visibility is below that required for take-off and RVR is not reported, a take-off should only be commenced if the pilot-in-command can determine that the visibility along the take-off runway/area is equal to or better than the required minimum.
    c. When no reported meteorological visibility or RVR is available, a take-off should only be commenced if the pilot-in-command can determine that the RVR/VIS along the take-off runway/area is equal to or better than the required minimum.
2. Visual reference:
    a. The take-off minima should be selected to ensure sufficient guidance to control the aircraft in the event of both a rejected take-off in adverse circumstances and a continued take-off after failure of the critical engine.
    b. For night operations, ground lights should be available to illuminate the runway/final approach and take-off area (FATO) and any obstacles.

AMC2-NCO.OP.110 Aerodrome operating minima – aeroplanes and helicopters

VISUAL APPROACH

For a visual approach operation, the RVR should not be less than 800 m.

AMC3-NCO.OP.110 Aerodrome operating minima – aeroplanes and helicopters

EFFECT ON LANDING MINIMA OF TEMPORARILY FAILED OR DOWNGRADED GROUND EQUIPMENT

1. Non-precision approaches requiring a final approach fix (FAF) and/or missed approach point (MAPt) should not be conducted where a method of identifying the appropriate fix is not available.
2. A minimum RVR of 750 m should be used for CAT I approaches in the absence of centreline lines and/or touchdown zone lights.
3. Where approach lighting is partly unavailable, minima should take account of the serviceable length of approach lighting.

GM1-NCO.OP.110 Aerodrome operating minima – aeroplanes and helicopters

COMMERCIALLY AVAILABLE INFORMATION

An acceptable method of selecting aerodrome operating minima is through the use of commercially available information.

GM2-NCO.OP.110 Aerodrome operating minima – aeroplanes and helicopters

VERTICAL PATH CONTROL

Due consideration should be given to the selection of an appropriate technique for vertical path control on non-precision approaches (NPAs). Where appropriate instrumentation and/or facilities are available, a continuous descent final approach technique (CDFA) usually offers increased safety and a lower workload compared to a step-down approach.

GM3-NCO.OP.110 Aerodrome operating minima – aeroplanes and helicopters

DETERMINATION OF RVR/CMV/VISIBILITY FOR APPROACHES

The method for establishing RVR/CMV/VIS minima for NPA, APV and CAT I operations are described in AMC5-NCC.OP.110 and AMC6-NCC.OP.110.

GM4-NCO.OP.110 Aerodrome operating minima – aeroplanes and helicopters

CONVERSION OF REPORTED METEOROLOGICAL VISIBILITY TO RVR/CMV

1. A conversion from meteorological visibility to RVR/CMV should not be used when:
   a. reported RVR is available;
   b. for calculating take-off minima; and
   c. for other RVR minima less than 800 m.
2. If the RVR is reported as being above the maximum value assessed by the aerodrome operator, e.g. 'RVR more than 1 500 m', it should not be considered as a reported value.
3. For all other circumstances, Table 1 should be used.

Table 1: Conversion of reported meteorological visibility to RVR/CMV

Lighting elements in operation	**RVR/CMV = reported meteorological visibility x**	
	Day	**Night**
High intensity (HI) approach and runway lights	1.5	2.0
Any type of light installation other than above	1.0	1.5
No lights	1.0	not applicable

GM5-NCO.OP.110 Aerodrome operating minima – aeroplanes and helicopters

AIRCRAFT CATEGORIES

1. Aircraft categories should be based on the indicated airspeed at threshold (V_{AT}), which is equal to the stalling speed (V_{SO}) multiplied by 1.3 or 1-g (gravity) stall speed (V_{S1g}) multiplied by 1.23 in the landing configuration at the maximum certified landing mass. If both V_{SO} and V_{S1g} are available, the higher resulting V_{AT} should be used.
2. The aircraft categories specified in the Table 1 should be used.

Table 1: Aircraft categories corresponding to VAT values

Aircraft category	**V_{AT}**
A	Less than 91 kt
B	from 91 to 120 kt
C	from 121 to 140 kt
D	from 141 to 165 kt
E	from 166 to 210 kt

GM6-NCO.OP.110 Aerodrome operating minima – aeroplanes and helicopters

CONTINUOUS DESCENT FINAL APPROACH (CDFA) – AEROPLANES

1. Introduction
   a. Controlled flight into terrain (CFIT) is a major hazard in aviation. Most CFIT accidents occur in the final approach segment of non-precision approaches; the use of stabilised-approach criteria on a continuous descent with a

constant, predetermined vertical path is seen as a major improvement in safety during the conduct of such approaches. The following techniques are adopted as widely as possible, for all approaches.

b. The elimination of level flight segments at MDA close to the ground during approaches, and the avoidance of major changes in attitude and power/thrust close to the runway that can destabilise approaches, are seen as ways to reduce operational risks significantly.

c. The term CDFA has been selected to cover a flight technique for any type of NPA operation.

d. The advantages of CDFA are as follows:

i. the technique enhances safe approach operations by the utilisation of standard operating practices;

ii. the technique is similar to that used when flying an ILS approach, including when executing the missed approach and the associated missed approach procedure manoeuvre;

iii. the aeroplane attitude may enable better acquisition of visual cues;

iv. the technique may reduce pilot workload;

v. the approach profile is fuel efficient;

vi. the approach profile affords reduced noise levels;

vii. the technique affords procedural integration with APV operations; and

viii. when used and the approach is flown in a stabilised manner, CDFA is the safest approach technique for all NPA operations.

2. CDFA

a. Continuous descent final approach is defined in Annex I to the Regulation on Air operations.

b. An approach is only suitable for application of a CDFA technique when it is flown along a nominal vertical profile; a nominal vertical profile is not forming part of the approach procedure design, but can be flown as a continuous descent. The nominal vertical profile information may be published or displayed on the approach chart to the pilot by depicting the nominal slope or range/distance vs. height. Approaches with a nominal vertical profile are considered to be:

i. NDB, NDB/DME (non-directional beacon / distance measuring equipment);

ii. VOR (VHF omnidirectional radio range), VOR/DME;

iii. LOC (localiser), LOC/DME;

iv. VDF (VHF direction finder), SRA (surveillance radar approach); and

v. GNSS/LNAV (global navigation satellite system / lateral navigation).

c. Stabilised approach (SAp) is defined in Annex I to the Regulation on Air operations.

i. The control of the descent path is not the only consideration when using the CDFA technique. Control of the aeroplane's configuration and energy is also vital to the safe conduct of an approach.

ii. The control of the flight path, described above as one of the requirements for conducting a SAp, should not be confused with the path requirements for using the CDFA technique.

iii. The predetermined approach slope requirements for applying the CDFA technique are established by the following:

A. the published 'nominal' slope information when the approach has a nominal vertical profile; and

B. the designated final-approach segment minimum of 3 NM, and maximum, when using timing techniques, of 8 NM.

iv. A SAp will never have any level segment of flight at DA/H or MDA/H, as applicable. This enhances safety by mandating a prompt missed approach procedure manoeuvre at DA/H or MDA/H.

v. An approach using the CDFA technique will always be flown as an SAp, since this is a requirement for applying CDFA. However, an SAp does not have to be flown using the CDFA technique, for example a visual approach.

GM7-NCO.OP.110 Aerodrome operating minima – aeroplanes and helicopters

ONSHORE AERODROME DEPARTURE PROCEDURES – HELICOPTERS

The cloud base and visibility should be such as to allow the helicopter to be clear of cloud at the take-off decision point (TDP), and for the pilot flying to remain in sight of the surface until reaching the minimum speed for flight in instrument meteorological conditions, as given in the AFM.

GM1-NCO.OP.112 Aerodrome operating minima – circling operations with aeroplanes

SUPPLEMENTAL INFORMATION

1. The purpose of this Guidance Material is to provide pilots with supplemental information regarding the application of aerodrome operating minima in relation to circling approaches.

2. Conduct of flight – general:

a. the MDH and obstacle clearance height (OCH) included in the procedure are referenced to aerodrome elevation;

b. the MDA is referenced to mean sea level; and

c. for these procedures, the applicable visibility is the meteorological visibility.

3. Instrument approach followed by visual manoeuvring (circling) without prescribed tracks.

a. When the aeroplane is on the initial instrument approach, before visual reference is stabilised, but not below MDA/H - the aeroplane should follow the corresponding instrument approach procedure until the appropriate instrument MAPt is reached.

b. At the beginning of the level flight phase at or above the MDA/H, the instrument approach track determined by radio navigation aids, GNSS, or ILS, microwave landing system (MLS), GBAS landing system (GLS) or precision approach radar (PAR) should be maintained until the pilot:

   i. estimates that, in all probability, visual contact with the runway of intended landing or the runway environment will be maintained during the entire circling procedure;

   ii. estimates that the aeroplane is within the circling area before commencing circling; and

   iii. is able to determine the aeroplane's position in relation to the runway of intended landing with the aid of the appropriate external references.

c. When reaching the published instrument MAPt and the conditions stipulated in 3.b. are unable to be established by the pilot, a missed approach should be carried out in accordance with that instrument approach procedure.

d. After the aeroplane has left the track of the initial instrument approach, the flight phase outbound from the runway should be limited to an appropriate distance, which is required to align the aeroplane onto the final approach. Such manoeuvres should be conducted to enable the aeroplane:

   i. to attain a controlled and stable descent path to the intended landing runway; and

   ii. remain within the circling area and in such way that visual contact with the runway of intended landing or runway environment is maintained at all times.

e. Flight manoeuvres should be carried out at an altitude/height that is not less than the circling MDA/H.

f. Descent below MDA/H should not be initiated until the threshold of the runway to be used has been appropriately identified. The aeroplane should be in a position to continue with a normal rate of descent and land within the touchdown zone.

4. Instrument approach followed by a visual manoeuvring (circling) with prescribed track

a. The aeroplane should remain on the initial instrument approach procedure until one of the following is reached:

   i. the prescribed divergence point to commence circling on the prescribed track; or

   ii. the MAPt.

b. The aeroplane should be established on the instrument approach track determined by the radio navigation aids, GNSS, or ILS, MLS, GLS or PAR in

level flight at or above the MDA/H at or by the circling manoeuvre divergence point.

c. If the divergence point is reached before the required visual reference is acquired, a missed approach should be initiated not later than the MAPt and completed in accordance with the initial instrument approach procedure.

d. When commencing the prescribed circling manoeuvre at the published divergence point, the subsequent manoeuvres should be conducted to comply with the published routing and published heights/altitudes.

e. Unless otherwise specified, once the aeroplane is established on the prescribed track(s), the published visual reference does not need to be maintained unless:

i. required by the State of the aerodrome; or

ii. the circling MAPt (if published) is reached.

f. If the prescribed circling manoeuvre has a published MAPt and the required visual reference has not been obtained by that point, a missed approach should be executed in accordance with 5.b. and 5.c.

g. Subsequent further descent below MDA/H should only commence when the required visual reference has been obtained.

h. Unless otherwise specified in the procedure, final descent should not be commenced from MDA/H until the threshold of the intended landing runway has been identified and the aeroplane is in a position to continue with a normal rate of descent to land within the touchdown zone.

5. Missed approach

a. Missed approach during the instrument procedure prior to circling:

i. if the missed approach is required to be flown when the aeroplane is positioned on the instrument approach track defined by radio navigation aids, GNSS, or ILS, MLS, GLS or PAR, and before commencing the circling manoeuvre, the published missed approach for the instrument approach should be followed; or

ii. if the instrument approach procedure is carried out with the aid of an ILS, MLS or a stabilised approach (SAp), the MAPt associated with an ILS or MLS procedure without glide path (GP-out procedure) or the SAp, where applicable, should be used.

b. If a prescribed missed approach is published for the circling manoeuvre, this overrides the manoeuvres prescribed below.

c. If visual reference is lost while circling to land after the aeroplane has departed from the initial instrument approach track, the missed approach specified for that particular instrument approach should be followed. It is expected that the pilot will make an initial climbing turn toward the intended landing runway to a position overhead of the aerodrome where the pilot will establish the aeroplane in a climb on the instrument missed approach segment.

d. The aeroplane should not leave the visual manoeuvring (circling) area, which is obstacle protected, unless:

   i. established on the appropriate missed approach procedure; or

   ii. at minimum sector altitude (MSA).

e. All turns should be made in the same direction and the aeroplane should remain within the circling protected area while climbing to either:

   i. the altitude assigned to any published circling missed approach manoeuvre if applicable;

   ii. the altitude assigned to the missed approach of the initial instrument approach;

   iii. the MSA;

   iv. the minimum holding altitude (MHA) applicable for transition to a holding facility or fix, or continue to climb to an MSA; or

   v. as directed by ATS.

   When the missed approach procedure is commenced on the "downwind" leg of the circling manoeuvre, an "S" turn may be undertaken to align the aeroplane on the initial instrument approach missed approach path, provided the aeroplane remains within the protected circling area.

   The pilot-in-command should be responsible for ensuring adequate terrain clearance during the above-stipulated manoeuvres, particularly during the execution of a missed approach initiated by ATS.

f. Because the circling manoeuvre may be accomplished in more than one direction, different patterns will be required to establish the aeroplane on the prescribed missed approach course depending on its position at the time visual reference is lost. In particular, all turns are to be in the prescribed direction if this is restricted, e.g. to the west/east (left or right hand) to remain within the protected circling area.

g. If a missed approach procedure is published for a particular runway onto which the aeroplane is conducting a circling approach and the aeroplane has commenced a manoeuvre to align with the runway, the missed approach for this direction may be accomplished. The ATS unit should be informed of the intention to fly the published missed approach procedure for that particular runway.

h. The pilot-in-command should advise ATS when any missed approach procedure has been commenced, the height/altitude the aeroplane is climbing to and the position the aeroplane is proceeding towards and / or heading the aeroplane is established on.

AMC1-NCO.OP.135 Passenger briefing

GENERAL

Except for balloons, the briefing should include the locations and use of seat belts and if applicable:

1. emergency exits;
2. passenger emergency briefing cards;
3. life-jackets;
4. oxygen dispensing equipment;
5. life rafts; and
6. other emergency equipment provided for individual passenger use.

BALLOONS

The briefing should include the following items:

1. the use of landing hand-holds;
2. wearing of suitable clothing;
3. smoking regulations;
4. stowage of baggage;
5. the importance to remain inside the basket at all times; and
6. the landing positions to be assumed to minimise the effect of the impact upon an emergency landing.

AMC1-NCO.OP.165 Meteorological conditions

APPLICATION OF AERODROME FORECASTS (TAF & TREND) – AEROPLANES AND HELICOPTERS

Where a terminal area forecast (TAF) or meteorological aerodrome or aeronautical report (METAR) with landing forecast (TREND) is used as forecast, the following criteria should be used:

1. From the start of a TAF validity period up to the time of applicability of the first subsequent 'FM...' or 'BECMG' or, if no 'FM' or BECMG' is given, up to the end of the validity period of the TAF, the prevailing weather conditions forecast in the initial part of the TAF should be applied.
2. From the time of observation of a METAR up to the time of applicability of the first subsequent 'FM...' or 'BECMG' or, if no 'FM' or BECMG' is given, up to the end of the validity period of the TREND, the prevailing weather conditions forecast in the METAR should be applied.
3. Following FM (alone) or BECMG AT, any specified change should be applied from the time of the change.
4. Following BECMG (alone), BECMG FM, BECMG TL, BECMG FM TL:
    a. in the case of deterioration, any specified change should be applied from the start of the change; and
    b. in the case of improvement, any specified change should be applied from the end of the change.

5. In a period indicated by TEMPO (alone), TEMPO FM, TEMPO TL, TEMPO FM TL, PROB30/40 (alone):
   a. deteriorations associated with persistent conditions in connection with e.g. haze, mist, fog, dust/sandstorm, continuous precipitation should be applied;
   b. deteriorations associated with transient/showery conditions in connection with short-lived weather phenomena, e.g. thunderstorms, showers may be ignored; and
   c. improvements should in all cases be disregarded.
6. In a period indicated by PROB30/40 TEMPO:
   a. deteriorations may be disregarded; and
   b. improvements should be disregarded.

Note: Abbreviations used in the context of this AMC is as follows:

FM: from

BECMG: becoming

AT: at

TL: till

TEMPO: temporarily

PROB: probability

GM1-NCO.OP.165 Meteorological conditions

CONTINUATION OF A FLIGHT – AEROPLANES AND HELICOPTERS

In the case of in-flight re-planning, continuation of a flight refers to the point from which a revised flight plan applies.

GM2-NCO.OP.165 Meteorological conditions

EVALUATION OF METEOROLOGICAL CONDITIONS – AEROPLANES AND HELICOPTERS

It is recommended that the pilot-in-command carefully evaluates the available meteorological information relevant to the proposed flight, such as applicable surface observations, winds, temperatures aloft, terminal and area forecasts, air meteorological information reports (AIRMETs), significant meteorological information (SIGMET) and pilot reports. The ultimate decision whether, when, and where to make the flight rests with the pilot-in-command. The pilot-in-command also should continue to re-evaluate changing weather conditions.

GM1-NCO.OP.175(b) Ice and other contaminants – flight procedures

KNOWN ICING CONDITIONS

Known icing conditions are conditions where actual ice is observed visually to be on the aircraft by the pilot or identified by on-board sensors.

AMC1-NCO.OP.205 Approach and landing conditions – aeroplanes and helicopters

LANDING DISTANCE/FATO SUITABILITY

The in-flight determination of the landing distance/FATO suitability should be based on the latest available meteorological report.

AMC1-NCO.OP.210 Commencement and continuation of approach – aeroplanes and helicopters

VISUAL REFERENCES FOR NPA, APV AND CAT I OPERATIONS

1. At DH or MDH, at least one of the visual references specified below should be distinctly visible and identifiable to the pilot:
   a. elements of the approach light system;
   b. the threshold;
   c. the threshold markings;
   d. the threshold lights;
   e. the threshold identification lights;
   f. the visual glide slope indicator;
   g. the touchdown zone or touchdown zone markings;
   h. the touchdown zone lights;
   i. runway edge lights; or
   j. other visual references specified in the operations manual.

GM1-NCO.OP.215 Operational limitations –hot-air balloons

NIGHT LANDING

The risk of collision with overhead lines is considerable and cannot be overstated. The risk is considerably increased during night flights in conditions of failing light and visibility when there is increasing pressure to land. A number of incidents have occurred in the late evening in just such conditions, and may have been avoided had an earlier landing been planned.

Subpart C – Aircraft performance and operating limitations

GM1-NCO.POL.105 Weighing – aeroplanes and helicopters

GENERAL

1. New aircraft that have been weighed at the factory may be placed into operation without reweighing if the mass and balance records have been adjusted for alterations or modifications to the aircraft. Aircraft transferred from one EU operator to another EU operator do not have to be weighed prior to use by the receiving operator, unless the mass and balance cannot be accurately established by calculation.
2. The mass and, except for balloons, the centre of gravity (CG) position of an aircraft should be revised whenever the cumulative changes to the dry operating mass exceed ± 0.5 % of the maximum landing mass or for aeroplanes the cumulative change in CG position exceeds 0.5 % of the mean aerodynamic chord. This may be done by weighing the aircraft or by calculation.

Subpart D – Instruments, data and equipment

Section 1 - Aeroplanes

GM1-NCC.IDE.A.100(a) Instruments and equipment – general

APPLICABLE AIRWORTHINESS REQUIREMENTS

The applicable airworthiness requirements for approval of instruments and equipment required by this Part are the following:

1. Regulation (EC) 1702/2003[4] for
   a. aeroplanes registered in the EU; and
   b. aeroplanes registered outside the EU but manufactured or designed by an EU organisation.
2. Airworthiness requirements of the state of registry for aeroplanes registered, designed and manufactured outside the EU.

GM1-NCO.IDE.A.100(a)&(b) Instruments and equipment – general

INSTRUMENTS AND EQUIPMENT THAT DO NOT NEED TO BE APPROVED

1. The provision of this paragraph does not exempt the item of equipment from complying with the applicable airworthiness requirements if the instrument or equipment is installed in the aeroplane. In this case, the installation should be approved as required in the applicable airworthiness requirements and should comply with the applicable airworthiness codes.
2. The functionality of non-installed instruments and equipment required by this Part that does not need an equipment approval should be checked against recognised industry standards appropriate for the intended purpose. The pilot-in command is responsible for ensuring the maintenance of these instruments and equipment. Examples may be the following:
   a. spare fuses,
   b. independent portable light,
   c. accurate time piece,
   d. first-aid kit,
   e. survival and signalling equipment,
   f. sea anchors and equipment for mooring,

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[4] Commission Regulation (EC) No 1702/2003 of 24 September 2003 laying down implementing rules for the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisations, *OJ L 243, 27.9.2003, p. 6.*

g. child restraint device,

h. portable oxygen equipment,

i. headsets, intercoms and microphones, and

j. life-jacket.

3. The failure of additional non-installed instruments or equipment not required by this Part or by the applicable airworthiness requirements or any applicable airspace requirements should not adversely affect the airworthiness and/or the safe operation of the aeroplane. Examples are the following:

   a. instruments supplying additional flight information (e.g. stand-alone global positioning system (GPS));

   b. mission dedicated equipment (e.g. radios); and

   c. non-installed passenger entertainment equipment.

GM1-NCO.IDE.A.110 Spare electrical fuses

FUSES

A spare electrical fuse means a replaceable fuse in the flight crew compartment, not an automatic circuit breaker or circuit breakers in the electric compartments.

AMC1-NCO.IDE.A.120&NCO.IDE.A.125 Operations under VFR & operations under IFR – flight and navigational instruments and associated equipment

INTEGRATED INSTRUMENTS

1. Individual equipment requirements may be met by combinations of instruments, by integrated flight systems or by a combination of parameters on electronic displays. The information so available to each required pilot should not be less than that required in the applicable operational requirements, and the equivalent safety of the installation should be approved during type certification of the aeroplane for the intended type of operation.

2. The means of measuring and indicating turn and slip, aeroplane attitude and stabilised aeroplane heading may be met by combinations of instruments or by integrated flight director systems, provided that the safeguards against total failure, inherent in the three separate instruments, are retained.

AMC2-NCO.IDE.A.120 Operations under VFR – flight and navigational instruments and associated equipment

LOCAL FLIGHTS

For flights that do not exceed 60 minutes duration, that take off and land at the same aerodrome, and that remain within 50 NM of that aerodrome, an equivalent means of complying with NCO.IDE.120.A (b)(1)(i), (b)(1)(ii) may be:

1. a turn and slip indicator;

2. a turn co-ordinator; or

3. both an attitude indicator and a slip indicator.

GM1-NCO.IDE.A.120 Operations under VFR – flight and navigational instruments and associated equipment

SLIP INDICATION

Aeroplanes should be equipped with a means of measuring and displaying slip.

GM1-NCO.IDE.A.125 Operations under IFR – flight and navigational instruments and associated equipment

ALTERNATE SOURCE OF STATIC PRESSURE

Aeroplanes should be equipped with an alternate source of static pressure.

AMC1-NCO.IDE.A.120(a)(1)&NCO.IDE.A.125(a)(1) Operations under VFR & operations under IFR – flight and navigational instruments and associated equipment

MEANS OF MEASURING AND DISPLAYING MAGNETIC HEADING

The means of measuring and displaying magnetic direction should be a magnetic compass or equivalent.

AMC1-NCO.IDE.A.120(a)(2)&NCO.IDE.A.125(a)(2) Operations under VFR & operations under IFR – flight and navigational instruments and associated equipment

MEANS OF MEASURING AND DISPLAYING THE TIME

A means of measuring and displaying the time in hours, minutes and seconds may be a wrist watch capable of the same functions.

AMC1-NCO.IDE.A.120(a)(3)&NCO.IDE.A.125(a)(3) Operations under VFR operations & operations under IFR – flight and navigational instruments and associated equipment

CALIBRATION OF THE MEANS OF MEASURING AND DISPLAYING PRESSURE ALTITUDE

The instrument measuring and displaying pressure altitude should be of a sensitive type calibrated in feet (ft), with a sub-scale setting, calibrated in hectopascals/millibars, adjustable for any barometric pressure likely to be set during flight.

GM1-NCO.IDE.A.125(a)(3) Operations under IFR – flight and navigational instruments and associated equipment

ALTIMETERS

Except for unpressurised aeroplanes operating below 10 000 ft, the altimeters of aeroplanes operating under IFR or at night should have counter drum-pointer or equivalent presentation.

AMC1-NCO.IDE.A.120(a)(4)&NCO.IDE.A.125(a)(4) Operations under VFR & operations under IFR – flight and navigational instruments and associated equipment

CALIBRATION OF THE INSTRUMENT INDICATING AIRSPEED

The instrument indicating airspeed should be calibrated in knots (kt). In the case of aeroplanes with a maximum certified take-off mass (MCTOM) below 2 000 kg, calibration in kilometres (km) per hour or in miles per hours (mph) is acceptable.

AMC1-NCO.IDE.A.125(a)(9) Operations under IFR – flight and navigational instruments and associated equipment

MEANS OF DISPLAYING OUTSIDE AIR TEMPERATURE

1. The means of displaying outside air temperature should be calibrated in degrees Celsius.
2. The means of displaying outside air temperature may be an air temperature indicator that provides indications that are convertible to outside air temperature.

AMC1-NCO.IDE.A.120(b)(3)&NCO.IDE.A.125(c) Operations under IFR – flight and navigational instruments and associated equipment

MEANS OF PREVENTING MALFUNCTION DUE TO CONDENSATION OR ICING

The means of preventing malfunction due to either condensation or icing of the airspeed indicating system should be a heated pitot tube or equivalent.

AMC1-NCO.IDE.A.130 Terrain awareness warning system (TAWS)

EXCESSIVE DOWNWARDS GLIDESLOPE DEVIATION WARNING FOR CLASS A TAWS

The requirement for a Class A TAWS to provide a warning to the flight crew for excessive downwards glideslope deviation should apply to all final approach glideslopes with angular vertical navigation (VNAV) guidance, whether provided by the instrument landing system (ILS), microwave landing system (MLS), satellite-based augmentation system approach procedure with vertical guidance (SBAS APV (localiser performance with vertical guidance approach LPV)), ground-based augmentation system (GBAS (GPS landing system, GLS)) or any other systems providing similar guidance. The same requirement should not apply to systems providing vertical guidance based on barometric VNAV.

GM1-NCO.IDE.A.130 Terrain awareness warning system (TAWS)

ACCEPTABLE STANDARD FOR TAWS

An acceptable standard for Class A and Class B TAWS may be the applicable European Technical Standards Order (ETSO) issued by the Agency or equivalent.

AMC1-NCO.IDE.A.135 Flight crew interphone system

GENERAL

1. The flight crew interphone system should not be of a handheld type.
2. A headset consists of a communication device that includes two earphones to receive and a microphone to transmit audio signals to the aeroplane's communication system. To comply with the minimum performance requirements, the earphones and microphone should match the communication system's characteristics and the flight crew compartment environment. The headset should be adequately adjustable in order to fit the pilot's head. Headset boom microphones should be of the noise cancelling type.
3. If the intention is to utilise noise cancelling earphones, the pilot-in-command should ensure that the earphones do not attenuate any aural warnings or sounds necessary for alerting the flight crew on matters related to the safe operation of the aeroplane.

GM1-NCO.IDE.A.135 Flight crew interphone system

HEADSET

The term 'headset' includes any aviation helmet incorporating headphones and microphone worn by a flight crew member.

AMC1-NCO.IDE.A.140 Seats, seat safety belts, restraint systems and child restraint devices

CHILD RESTRAINT DEVICES (CRD)

1. A CRD is considered to be acceptable if:
   a. it is a supplementary loop belt manufactured with the same techniques and the same materials of the approved safety belts; or
   b. it complies with 2.
2. Provided the CRD can be installed properly on the respective aircraft seat, the following CRDs are considered acceptable:
   a. CRDs approved for use in aircraft by a competent authority on the basis of a technical standard and marked accordingly.
   b. CRDs approved for use in motor vehicles according to the UN standard ECE R 44, -03 or later series of amendments.
   c. CRDs approved for use in motor vehicles and aircraft according to Canadian CMVSS 213/213.1.
   d. CRDs approved for use in motor vehicles and aircraft according to US FMVSS No 213 and manufactured to these standards on or after February 26, 1985. US approved CRDs manufactured after this date should bear the following labels in red letters:
      i. "THIS CHILD RESTRAINT SYSTEM CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS"; and

ii. "THIS RESTRAINT IS CERTIFIED FOR USE IN MOTOR VEHICLES AND AIRCRAFT".

e. CRDs qualified for use in aircraft according to the German "Qualification Procedure restraint Systems for Use in Aircraft" (TÜV Doc.: TÜV/958-01/2001).

f. Devices approved for use in cars, manufactured and tested to standards equivalent to those listed above. The device should be marked with an associated qualification sign, showing the name of the qualification organisation and a specific identification number, related to the associated qualification project. The qualifying organisation should be a competent and independent organisation.

3. Location

a. Forward facing CRDs may be installed on both forward and rearward facing passenger seats but only when fitted in the same direction as the passenger seat on which it is positioned. Rearward facing CRDs can only be installed on forward facing passenger seats. A CRD may not be installed within the radius of action of an airbag, unless it is obvious that the airbag is de-activated or it can be demonstrated that there is no negative impact from the airbag.

b. A person in a restraint device should be located as near to a floor level exit as feasible.

c. A person in a restraint device should not hinder evacuation for any passenger.

4. Installation

a. CRDs should only be installed on a suitable aircraft seat with the type of connecting device they are approved or qualified for. For example, CRDs to be connected by a three point harness only (most rearward facing baby CRDs currently available) should not be attached to an aircraft seat with a lap belt only; a CRD designed to be attached to a vehicle seat by means of rigid bar lower anchorages (ISO-FIX or US equivalent) only, should only be used on aircraft seats that are equipped with such connecting devices and should not be attached by the aircraft seat lap belt. The method of connecting should be the one shown in the manufacturer's instructions provided with each CRD.

b. All safety and installation instructions should be followed carefully by the responsible person accompanying the infant.

c. If a forward facing CRD with a rigid backrest is to be fastened by a lap belt, the restraint device should be fastened when the backrest of the passenger seat on which it rests is in a reclined position. Thereafter, the backrest is to be positioned upright. This procedure ensures better tightening of the CRD on the aircraft seat if the aircraft seat is reclinable.

d. The buckle of the adult safety belt should be easily accessible for both opening and closing, and should be in line with the seat belt halves (not canted) after tightening.

e. Forward facing restraint devices with an integral harness must not be installed such that the adult safety belt is secured over the child.

5. Operation

   a. Each CRD should remain secured to a passenger seat during all phases of flight, unless it is properly stowed when not in use.

   b. Where a CRD is adjustable in recline, it should be in an upright position for all occasions when passengers are required to fasten their safety belts.

AMC2-NCO.IDE.A.140 Seats, seat safety belts, restraint systems and child restraint devices

UPPER TORSO RESTRAINT SYSTEM

The following systems are deemed to be compliant with the requirement for an upper torso restraint system:

1. A safety belt with a diagonal shoulder strap.
2. A restraint system having two or three straps.

SAFETY BELT

A safety belt with diagonal shoulder strap (three anchorage points) is deemed to be compliant with the requirement for safety belts (two anchorage points).

AMC1-NCO.IDE.A.145 First-aid kit

GENERAL

First-aid kits (FAKs) compliant with DIN 13164 or DIN 13157 are considered to meet the objective of NCO.IDE.A.145.

AMC2-NCO.IDE.A.145 First-aid kit

MAINTENANCE OF FIRST-AID KIT

To be kept up-to-date, the first-aid kit should be:

1. inspected periodically to confirm, to the extent possible, that contents are maintained in the condition necessary for their intended use; and
2. replenished at regular intervals, in accordance with instructions contained on their labels, or as circumstances warrant.

AMC1-NCO.IDE.A.150 Supplemental oxygen – pressurised aeroplanes

DETERMINATION OF OXYGEN

1. In the determination of oxygen for the routes to be flown, it is assumed that the aeroplane will descend in accordance with the emergency procedures specified in the AFM, without exceeding its operating limitations, to a flight altitude that will allow the flight to be completed safely (i.e. flight altitudes ensuring adequate terrain clearance, navigational accuracy, hazardous weather avoidance etc.).
2. The amount of oxygen should be determined on the basis of cabin pressure altitude, flight duration and on the assumption that a cabin pressurisation failure

will occur at the pressure altitude or point of flight that is most critical from the standpoint of oxygen need.

3. Following a cabin pressurisation failure, the cabin pressure altitude should be considered to be the same as the aeroplane pressure altitude, unless it can be demonstrated to the competent authority that no probable failure of the cabin or pressurisation system will result in a cabin pressure altitude equal to the aeroplane pressure altitude. Under these circumstances, the demonstrated maximum cabin pressure altitude may be used as a basis for determination of oxygen supply.

AMC1-NCO.IDE.A.155 Supplemental oxygen – non-pressurised aeroplanes

DETERMINATION OF OXYGEN

1. In the determination of oxygen for the routes to be flown, it is assumed that the aeroplane will descend in accordance with the emergency procedures specified in the AFM, without exceeding its operating limitations, to a flight altitude that will allow the flight to be completed safely (i.e. flight altitudes ensuring adequate terrain clearance, navigational accuracy, hazardous weather avoidance etc.).
2. The amount of oxygen should be determined on the basis of cabin pressure altitude and flight duration.

AMC1-NCO.IDE.A.165 Marking of break-in points

COLOUR AND CORNERS' MARKING

1. The colour of the markings should be red or yellow and, if necessary, should be outlined in white to contrast with the background.
2. If the corner markings are more than 2 m apart, intermediate lines 9 cm x 3 cm should be inserted so that there is no more than 2 m between adjacent markings.

AMC1-NCO.IDE.A.170 Emergency locator transmitter (ELT)

ELT BATTERIES

Batteries used in the ELTs should be replaced (or recharged, if the battery is rechargeable) when the equipment has been in use for more than 1 cumulative hour, and also when 50 % of their useful life (or for rechargeable, 50 % of their useful life of charge), as established by the equipment manufacturer, has expired. The new expiry date for the replacement (or recharged) battery should be legibly marked on the outside of the equipment. The battery useful life (or useful life of charge) requirements of this paragraph do not apply to batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals.

AMC2-NCO.IDE.A.170 Emergency locator transmitter (ELT)

TYPES OF ELT AND GENERAL TECHNICAL SPECIFICATIONS

1. The ELT required by this provision should be one of the following:

a. Automatic fixed (ELT(AF)). An automatically activated ELT that is permanently attached to an aircraft and is designed to aid search and rescue (SAR) teams in locating the crash site.

b. Automatic portable (ELT(AP)). An automatically activated ELT that is rigidly attached to an aircraft before a crash, but is readily removable from the aircraft after a crash. It functions as an ELT during the crash sequence. If the ELT does not employ an integral antenna, the aircraft-mounted antenna may be disconnected and an auxiliary antenna (stored on the ELT case) attached to the ELT. The ELT can be tethered to a survivor or a life-raft. This type of ELT is intended to aid SAR teams in locating the crash site or survivor(s).

c. Automatic deployable (ELT(AD)). An ELT that is rigidly attached to the aircraft before the crash and that is automatically ejected, deployed and activated by an impact, and, in some cases, also by hydrostatic sensors. Manual deployment is also provided. This type of ELT should float in water and is intended to aid SAR teams in locating the crash site.

d. Survival ELT (ELT(S)). An ELT that is removable from an aircraft, stowed so as to facilitate its ready use in an emergency and manually activated by a survivor. An ELT(S) may be activated manually or automatically (e.g. by water activation). It should be designed to be tethered to a life-raft or a survivor.

2. To minimise the possibility of damage in the event of crash impact, the automatic ELT should be rigidly fixed to the aircraft structure, as far aft as is practicable, with its antenna and connections arranged so as to maximise the probability of the signal being transmitted after a crash.

3. Any ELT carried should operate in accordance with the relevant provisions of ICAO Annex 10, Volume III and should be registered with the national agency responsible for initiating search and rescue or other nominated agency.

AMC3-NCO.IDE.A.170 Emergency locator transmitter (ELT)

PLB TECHNICAL SPECIFICATIONS

A personal locator beacon (PLB) should have a built-in GNSS receiver with a cosmicheskaya sistyema poiska avariynich sudov - search and rescue satellite-aided tracking (COSPAS-SARSAT) type approval number. However, devices with a COSPAS-SARSAT with a number belonging to series 700 are excluded as this series of numbers identifies the special-use beacons not meeting all the technical requirements and all the tests specified by COSPAS-SARSAT.

GM1-NCO.IDE.A.170 Emergency locator transmitter (ELT)

TERMINOLOGY

1. An ELT is a generic term describing equipment that broadcasts distinctive signals on designated frequencies and, depending on application, may be activated by impact or may be manually activated.

2. A PLB is an emergency beacon other than an ELT that broadcasts distinctive signals on designated frequencies, is standalone, portable and is manually activated by the survivors.

AMC1-NCO.IDE.A.175 Flight over water

ACCESSIBILITY OF LIFE-JACKETS

The life-jacket should be accessible from the seat or berth of the person for whose use it is provided, with a safety belt or a restraint system fastened.

MEANS OF ILLUMINATION FOR LIFE-JACKETS

Each life-jacket or equivalent individual flotation device should be equipped with a means of electric illumination for the purpose of facilitating the location of persons.

RISK ASSESSMENT

1. When conducting the risk assessment, the pilot-in-command should base his/her decision, as far as is practicable, on the Implementing Rules and AMCs applicable to the operation of the aeroplane.
2. The pilot-in-command should, for determining the risk, take the following operating environment and conditions into account:
   a. sea state;
   b. sea and air temperatures;
   c. the distance from land suitable for making an emergency landing; and
   d. the availability of search and rescue facilities.

GM1-NCO.IDE.A.175 Flight over water

SEAT CUSHIONS

Seat cushions are not considered to be flotation devices.

AMC1-NCO.IDE.A.180 Survival equipment

GENERAL

1. Aeroplanes operated across land areas in which search and rescue would be especially difficult should be equipped with the following:
   a. signalling equipment to make the distress signals;
   b. at least one ELT (S) or a PLB, carried by the pilot-in-command or a passenger; and
   c. additional survival equipment for the route to be flown taking account of the number of persons on board.
2. The additional survival equipment specified in 1.c. should be carried when the aeroplane remains within a distance from an area where search and rescue is not especially difficult, that corresponds to:

a. 120 minutes at one-engine-inoperative (OEI) cruising speed for aeroplanes capable of continuing the flight to an aerodrome with the critical engine(s) becoming inoperative at any point along the route or planned diversion routes; or

b. 30 minutes at cruising speed for all other aeroplanes.

AMC2-NCO.IDE.A.180 Survival equipment

ADDITIONAL SURVIVAL EQUIPMENT

1. The following additional survival equipment should be carried when required:
   a. 500 ml of water for each four, or fraction of four, persons on board;
   b. one knife;
   c. first-aid equipment; and
   d. one set of air/ground codes.
2. If any item of equipment contained in the above list is already carried on board the aeroplane in accordance with another requirement, there is no need for this to be duplicated.

GM1-NCO.IDE.A.180 Survival equipment

SIGNALLING EQUIPMENT

The signalling equipment for making distress signals is described in ICAO Annex 2, Rules of the Air.

GM2-NCO.IDE.A.180 Survival equipment

AREAS IN WHICH SEARCH AND RESCUE WOULD BE ESPECIALLY DIFFICULT

The expression 'areas in which search and rescue would be especially difficult' should be interpreted, in this context, as meaning:

1. areas so designated by the competent authority responsible for managing search and rescue; or
2. areas that are largely uninhabited and where:
   a. the competent authority responsible for managing search and rescue has not published any information to confirm whether search and rescue would be or would not be especially difficult; and
   b. the competent authority referred to in 1. does not, as a matter of policy, designate areas as being especially difficult for search and rescue.

AMC1-NCO.IDE.A.195 Navigation equipment

NAVIGATION WITH VISUAL REFERENCE TO LANDMARKS

Where aeroplanes, with the surface in sight, can proceed according to its ATS flight plan by navigation with visual reference to landmarks, no additional equipment is needed to comply with NCO.IDE.A.195 (a)(1).

GM1-NCO.IDE.A.195 Navigation equipment

APPLICABLE AIRSPACE REQUIREMENTS

For aeroplanes being operated under European air traffic control, the applicable airspace requirements include the Single European Sky legislation.

AMC1-NCO.IDE.A.200 Transponder

GENERAL

1. The SSR transponders of aeroplanes being operated under European air traffic control should comply with any applicable Single European Sky legislation.
2. If the Single European Sky legislation is not applicable, the SSR transponders should operate in accordance with the relevant provisions of Volume IV of ICAO Annex 10.

Section 2 - Helicopters

GM1-NCC.IDE.H.100(a) Instruments and equipment – general

APPLICABLE AIRWORTHINESS REQUIREMENTS

The applicable airworthiness requirements for approval of instruments and equipment required by this Part are the following:

1. Regulation (EC) 1702/2003 for:
    a. helicopters registered in the EU; and
    b. helicopters registered outside the EU but manufactured or designed by an EU organisation.
2. Airworthiness requirements of the state of registry for helicopters registered, designed and manufactured outside the EU.

GM1-NCO.IDE.H.100(a)&(b) Instruments and equipment – general

INSTRUMENTS AND EQUIPMENT THAT DO NOT NEED TO BE APPROVED

1. The provision of this paragraph does not exempt the item of equipment from complying with the applicable airworthiness requirements if the instrument or equipment is installed in the helicopter. In this case, the installation should be approved as required in the applicable airworthiness requirements and should comply with the applicable airworthiness codes.
2. The functionality of non-installed instruments and equipment required by this Part that does not need an equipment approval should be checked against recognised industry standards appropriate for the intended purpose. The pilot-in command is responsible for ensuring the maintenance of these instruments and equipment. Examples may be the following:
    a. independent portable light,
    b. accurate time piece,
    c. first-aid kit,
    d. survival and signalling equipment,
    e. sea anchors and equipment for mooring,
    f. child restraint device,
    g. portable oxygen equipment,
    h. headsets, intercoms and microphones, and
    i. life-jacket.
3. The failure of additional non-installed instruments or equipment not required by this Part or by the applicable airworthiness requirements or any applicable airspace

requirements should not adversely affect the airworthiness and/or the safe operation of the helicopter. Examples are the following:

a. instruments supplying additional flight information (e.g. stand-alone GPS);

b. mission dedicated equipment (e.g. radios); and

c. non-installed passenger entertainment equipment.

AMC1-NCO.IDE.H.115 Operating lights

LANDING LIGHT

The landing light should be trainable, at least in the vertical plane, or optionally be an additional fixed light or lights positioned to give a wide spread of illumination.

AMC1-NCO.IDE.H.120&NCO.IDE.H.125 Operations under VFR & operations under IFR – flight and navigational instruments and associated equipment

INTEGRATED INSTRUMENTS

1. Individual equipment requirements may be met by combinations of instruments, by integrated flight systems or by a combination of parameters on electronic displays. The information so available to each required pilot should not be less than that required in the applicable operational requirements, and the equivalent safety of the installation should be approved during type certification of the helicopter for the intended type of operation.
2. The means of measuring and indicating turn and slip, helicopter attitude and stabilised helicopter heading may be met by combinations of instruments or by integrated flight director systems, provided that the safeguards against total failure, inherent in the three separate instruments, are retained.

AMC1-NCO.IDE.H.120(a)(1)&NCO.IDE.H.125(a)(1) Operations under VFR & operations under IFR – flight and navigational instruments and associated equipment

MEANS OF MEASURING AND DISPLAYING MAGNETIC HEADING

The means of measuring and displaying magnetic direction should be a magnetic compass or equivalent.

AMC1-NCO.IDE.H.120(a)(2)&NCO.IDE.H.125(a)(2) Operations under VFR & operations under IFR – flight and navigational instruments and associated equipment

MEANS OF MEASURING AND DISPLAYING THE TIME

A means of measuring and displaying the time in hours, minutes and seconds may be a wrist watch capable of the same functions.

AMC1-NCO.IDE.H.120(a)(3)&NCO.IDE.H.125(a)(3) Operations under VFR & operations under IFR – flight and navigational instruments and associated equipment

CALIBRATION OF THE MEANS OF MEASURING AND DISPLAYING PRESSURE ALTITUDE

The instrument measuring and displaying pressure altitude should be of a sensitive type calibrated in feet (ft), with a sub-scale setting, calibrated in hectopascals/millibars, adjustable for any barometric pressure likely to be set during flight.

GM1-NCO.IDE.H.125(a)(3) Operations under IFR – flight and navigational instruments and associated equipment

ALTIMETERS

Except for unpressurised helicopters operating below 10 000 feet, the altimeters of helicopters operating under IFR or at night should have counter drum-pointer or equivalent presentation.

AMC1-NCO.IDE.H.120(a)(4)&NCO.IDE.H.125(a)(4) Operations under VFR & operations under IFR – flight and navigational instruments and associated equipment

CALIBRATION OF THE INSTRUMENT INDICATING AIRSPEED

The instrument indicating airspeed should be calibrated in knots (kt). In the case of helicopters with an MCTOM below 2 000 kg, calibration in kilometres (km) per hour or in miles per hours (mph) is acceptable.

AMC1-NCO.IDE.H.120(a)(5) Operations under VFR & operations under IFR – flight and navigational instruments and associated equipment

SLIP INDICATION

The means of measuring and displaying slip may be a slip string for operations under VFR.

AMC1-NCO.IDE.H.125(a)(9) Operations under IFR – flight and navigational instruments and associated equipment

MEANS OF DISPLAYING OUTSIDE AIR TEMPERATURE

1. The means of displaying outside air temperature should be calibrated in degrees Celsius.
2. The means of displaying outside air temperature may be an air temperature indicator that provides indications that are convertible to outside air temperature.

AMC1-NCO.IDE.H.120(b)(1)(iii)&NCO.IDE.H.125(a)(8) Operations under VFR & operations under IFR – flight and navigational instruments and associated equipment and

STABILISED HEADING

Stabilised direction should be achieved for VFR flights by a gyroscopic direction indicator, whereas for IFR flights, this should be achieved through a magnetic gyroscopic direction indicator.

AMC1-NCO.IDE.H.120.(b)(3)&NCO.IDE.H.125(c) Operations under IFR – flight and navigational instruments and associated equipment

MEANS OF PREVENTING MALFUNCTION DUE TO CONDENSATION OR ICING

The means of preventing malfunction due to either condensation or icing of the airspeed indicating system should be a heated pitot tube or equivalent.

AMC1-NCO.IDE.H.135 Flight crew interphone system

GENERAL

1. The flight crew interphone system should not be of a handheld type.
2. A headset consists of a communication device which includes two earphones to receive and a microphone to transmit audio signals to the helicopter's communication system. To comply with the minimum performance requirements, the earphones and microphone should match the communication system's characteristics and the flight crew compartment environment. The headset should be adequately adjustable in order to fit the pilot's head. Headset boom microphones should be of the noise cancelling type.
3. If the intention is to utilise noise cancelling earphones, the pilot-in-command should ensure that the earphones do not attenuate any aural warnings or sounds necessary for alerting the flight crew on matters related to the safe operation of the helicopter.

GM1-NCO.IDE.H.135 Flight crew interphone system

HEADSET

The term 'headset' includes any aviation helmet incorporating headphones and microphone worn by a flight crew member.

AMC1-NCO.IDE.H.140 Seats, seat safety belts, restraint systems and child restraint devices

CHILD RESTRAINT DEVICES (CRD)

1. A CRD is considered to be acceptable if:
   a. it is a supplementary loop belt manufactured with the same techniques and the same materials of the approved safety belts; or

b. it complies with 2.

2. Provided the CRD can be installed properly on the respective aircraft seat, the following CRDs are considered acceptable:

   a. CRDs approved for use in aircraft by a competent authority on the basis of a technical standard and marked accordingly.

   b. CRDs approved for use in motor vehicles according to the UN standard ECE R 44, -03 or later series of amendments.

   c. CRDs approved for use in motor vehicles and aircraft according to Canadian CMVSS 213/213.1.

   d. CRDs approved for use in motor vehicles and aircraft according to US FMVSS No 213 and manufactured to these standards on or after February 26, 1985. US approved CRDs manufactured after this date should bear the following labels in red letters:

      i. "THIS CHILD RESTRAINT SYSTEM CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS"; and

      ii. "THIS RESTRAINT IS CERTIFIED FOR USE IN MOTOR VEHICLES AND AIRCRAFT".

   e. CRDs qualified for use in aircraft according to the German "Qualification Procedure for Child Restraint Systems for Use in Aircraft" (TÜV Doc.: TÜV/958-01/2001).

   f. Devices approved for use in cars, manufactured and tested to standards equivalent to those listed above. The device should be marked with an associated qualification sign, showing the name of the qualification organisation and a specific identification number, related to the associated qualification project. The qualifying organisation should be a competent and independent organisation.

3. Location

   a. Forward facing CRDs may be installed on both forward and rearward facing passenger seats but only when fitted in the same direction as the passenger seat on which it is positioned. Rearward facing CRDs can only be installed on forward facing passenger seats. A CRD may not be installed within the radius of action of an airbag, unless it is obvious that the airbag is de-activated or it can be demonstrated that there is no negative impact from the airbag.

   b. A person in a restraint device should be located as near to a floor level exit as feasible.

   c. A person in a restraint device should not hinder evacuation for any passenger.

4. Installation

   a. CRDs should only be installed on a suitable aircraft seat with the type of connecting device they are approved or qualified for. For example, CRDs to be connected by a three point harness only (most rearward facing baby CRDs currently available) should not be attached to an aircraft seat with a lap belt only; a CRD designed to be attached to a vehicle seat by means of rigid bar

lower anchorages (ISO-FIX or US equivalent) only, should only be used on aircraft seats that are equipped with such connecting devices and should not be attached by the aircraft seat lap belt. The method of connecting should be the one shown in the manufacturer's instructions provided with each CRD.

b. All safety and installation instructions should be followed carefully by the responsible person accompanying the infant.

c. If a forward facing CRD with a rigid backrest is to be fastened by a lap belt, the restraint device should be fastened when the backrest of the passenger seat on which it rests is in a reclined position. Thereafter, the backrest is to be positioned upright. This procedure ensures better tightening of the CRD on the aircraft seat if the aircraft seat is reclinable.

d. The buckle of the adult safety belt should be easily accessible for both opening and closing, and should be in line with the seat belt halves (not canted) after tightening.

e. Forward facing restraint devices with an integral harness must not be installed such that the adult safety belt is secured over the child.

5. Operation

a. Each CRD should remain secured to a passenger seat during all phases of flight, unless it is properly stowed when not in use.

b. Where a CRD is adjustable in recline it should be in an upright position for all occasions when passengers are required to fasten their seat belts.

AMC2-NCO.IDE.H.140 Seats, seat safety belts, restraint systems and child restraint devices

UPPER TORSO RESTRAINT SYSTEM

The following systems are deemed to be compliant with the requirement for an upper torso restraint system:

1. a safety belt with a diagonal shoulder strap; and

2. a restraint system having two or three straps.

SAFETY BELT

A safety belt with diagonal shoulder strap (three anchorage points) is deemed to be compliant with the requirement for safety belts (two anchorage points).

AMC1-NCO.IDE.H.145 First-aid kit

GENERAL

First-aid kits (FAKs) compliant with DIN 13164 or DIN 13157 are considered to meet the objective of NCO.IDE.H.145.

AMC2-NCO.IDE.H.145 First-aid kit

MAINTENANCE OF FIRST-AID KIT

To be kept up-to-date, the first-aid kit should be:

1. inspected periodically to confirm, to the extent possible, that contents are maintained in the condition necessary for their intended use; and
2. replenished at regular intervals, in accordance with instructions contained on their labels, or as circumstances warrant.

AMC1-NCO.IDE.H.155 Supplemental oxygen – non-pressurised helicopters

DETERMINATION OF OXYGEN

The amount of oxygen should be determined on the basis of cabin pressure altitude and flight duration, consistent with the operating procedures, including emergency, procedures, established for each operation and the routes to be flown as specified in the AFM.

AMC1-NCC.IDE.H.165 Marking of break-in points

COLOUR AND CORNERS' MARKING

1. The colour of the markings should be red or yellow and, if necessary, should be outlined in white to contrast with the background.
2. If the corner markings are more than 2 m apart, intermediate lines 9 cm x 3 cm should be inserted so that there is no more than 2 m between adjacent markings.

AMC1-NCO.IDE.H.170 Emergency locator transmitter (ELT)

ELT BATTERIES

Batteries used in the ELTs should be replaced (or recharged, if the battery is rechargeable) when the equipment has been in use for more than 1 cumulative hour, and also when 50 % of their useful life (or for rechargeable, 50 % of their useful life of charge), as established by the equipment manufacturer has expired. The new expiry date for the replacement (or recharged) battery should be legibly marked on the outside of the equipment. The battery useful life (or useful life of charge) requirements of this paragraph do not apply to batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals.

AMC2-NCO.IDE.H.170 Emergency locator transmitter (ELT)

TYPES OF ELT AND GENERAL TECHNICAL SPECIFICATIONS

1. The ELT required by this provision should be one of the following:
    a. Automatic fixed (ELT(AF)). An automatically activated ELT that is permanently attached to an aircraft and is designed to aid SAR teams in locating the crash site.

b. Automatic portable (ELT(AP)). An automatically activated ELT that is rigidly attached to an aircraft before a crash, but is readily removable from the aircraft after a crash. It functions as an ELT during the crash sequence. If the ELT does not employ an integral antenna, the aircraft-mounted antenna may be disconnected and an auxiliary antenna (stored on the ELT case) attached to the ELT. The ELT can be tethered to a survivor or a life-raft. This type of ELT is intended to aid SAR teams in locating the crash site or survivor(s).

c. Automatic deployable (ELT(AD)). An ELT that is rigidly attached to the aircraft before the crash and that is automatically ejected, deployed and activated by an impact, and, in some cases, also by hydrostatic sensors. Manual deployment is also provided. This type of ELT should float in water and is intended to aid SAR teams in locating the crash site.

d. Survival ELT (ELT(S)). An ELT that is removable from an aircraft, stowed so as to facilitate its ready use in an emergency, and manually activated by a survivor. An ELT(S) may be activated manually or automatically (e.g. by water activation). It should be designed to be tethered to a life-raft or a survivor.

2. To minimise the possibility of damage in the event of crash impact, the automatic ELT should be rigidly fixed to the aircraft structure, as far aft as is practicable, with its antenna and connections arranged so as to maximise the probability of the signal being transmitted after a crash.

3. Any ELT carried should operate in accordance with the relevant provisions of ICAO Annex 10, Volume III and should be registered with the national agency responsible for initiating search and rescue or other nominated agency.

AMC3-NCO.IDE.H.170 Emergency locator transmitter (ELT)

PLB TECHNICAL SPECIFICATIONS

A personal locator beacon (PLB) should have a built-in GNSS receiver with a cosmicheskaya sistyema poiska avariynich sudov - search and rescue satellite-aided tracking (COSPAS-SARSAT) type approval number. However, devices with a COSPAS-SARSAT with a number belonging to series 700 are excluded as this series of numbers identifies the special-use beacons not meeting all the technical requirements and all the tests specified by COSPAS-SARSAT.

GM1-NCO.IDE.H.170 Emergency locator transmitter (ELT)

TERMINOLOGY

1. An ELT is a generic term describing equipment that broadcasts distinctive signals on designated frequencies and, depending on application, may be activated by impact or may be manually activated.

2. A PLB is an emergency beacon other than an ELT that broadcasts distinctive signals on designated frequencies, is standalone, portable and is manually activated by the survivors.

AMC1-NCO.IDE.H.175 Flight over water

ACCESSIBILITY OF LIFE-JACKETS

The life-jacket should be accessible from the seat or berth of the person for whose use it is provided, with a safety belt or a restraint system fastened.

RISK ASSESSMENT

1. When conducting the risk assessment, the pilot-in-command should base his/her decision, as far as is practicable, on the Implementing Rules and AMCs applicable to the operation of the helicopter.
2. The pilot-in-command should, for determining the risk, take the following operating environment and conditions into account:
    a. sea state;
    b. sea and air temperatures;
    c. the distance from land suitable for making an emergency landing; and
    d. the availability of search and rescue facilities.

GM1-NCO.IDE.H.175 Flight over water

SEAT CUSHIONS

Seat cushions are not considered to be flotation devices.

AMC1-NCO.IDE.H.180 Survival equipment

GENERAL

Helicopters operated across areas in which search and rescue would be especially difficult should be equipped with the following:

1. signalling equipment to make the distress signals;
2. at least one ELT(S) or a PLB, carried by the pilot-in-command or a passenger; and
3. additional survival equipment for the route to be flown taking account of the number of persons on board.

AMC2-NCO.IDE.H.180 Survival equipment

ADDITIONAL SURVIVAL EQUIPMENT

1. The following additional survival equipment should be carried when required:
    a. 500 ml of water for each four, or fraction of four, persons on board;
    b. one knife;
    c. first-aid equipment; and
    d. one set of air/ground codes;

2. If any item of equipment contained in the above list is already carried on board the helicopter in accordance with another requirement, there is no need for this to be duplicated.

GM1-NCO.IDE.H.180 Survival equipment

SIGNALLING EQUIPMENT

The signalling equipment for making distress signals is described in ICAO Annex 2, Rules of the Air.

GM2-NCO.IDE.H.180 Survival equipment

AREAS IN WHICH SEARCH AND RESCUE WOULD BE ESPECIALLY DIFFICULT

The expression 'areas in which search and rescue would be especially difficult' should be interpreted, in this context, as meaning:

1. areas so designated by the competent authority responsible for managing search and rescue; or
2. areas that are largely uninhabited and where:
   a. the competent authority responsible for managing search and rescue has not published any information to confirm whether search and rescue would be or would not be especially difficult; and
   b. the competent authority referred to in 1. does not, as a matter of policy, designate areas as being especially difficult for search and rescue.

AMC1-NCO.IDE.H.195 Navigation equipment

NAVIGATION WITH VISUAL REFERENCE TO LANDMARKS

Where helicopter, with the surface in sight, can proceed according to the ATS flight plan by navigation with visual reference to landmarks, no additional equipment is needed to comply NCO.IDE.H.195 (a)(1).

GM1-NCO.IDE.H.195 Navigation equipment

APPLICABLE AIRSPACE REQUIREMENTS

For helicopters being operated under European air traffic control, the applicable airspace requirements include the Single European Sky legislation.

AMC1-NCO.IDE.H.200 Transponder

GENERAL

1. The SSR transponders of helicopters being operated under European air traffic control should comply with any applicable Single European Sky legislation.

2. If the Single European Sky legislation is not applicable, the SSR transponders should operate in accordance with the relevant provisions of Volume IV of ICAO Annex 10.

Section 3 - Sailplanes

GM1-NCC.IDE.S.100(a) Instruments and equipment – general

APPLICABLE AIRWORTHINESS REQUIREMENTS

The applicable airworthiness requirements for approval of instruments and equipment required by this Part are the following:

1. Regulation (EC) 1702/2003 for:
   a. sailplanes registered in the EU; and
   b. sailplanes registered outside the EU but manufactured or designed by an EU organisation.
2. Airworthiness requirements of the state of registry for sailplanes registered, designed and manufactured outside the EU.

GM1-NCO.IDE.S.100(a)&(b) Instruments and equipment – general

INSTRUMENTS AND EQUIPMENT THAT DO NOT NEED TO BE APPROVED

1. The provision of this paragraph does not exempt the item of equipment from complying with the applicable airworthiness requirements if the instrument or equipment is installed in the sailplane. In this case, the installation should be approved as required in the applicable airworthiness requirements and should comply with the applicable airworthiness codes.
2. The functionality of non-installed instruments and equipment required by this Part that does not need an equipment approval should be checked against recognised industry standards appropriate for the intended purpose. The pilot-in-command is responsible for ensuring the maintenance of these instruments and equipment. Examples may be the following:
   a. independent portable light,
   b. accurate time piece,
   c. survival and signalling equipment,
   d. portable oxygen equipment, and
   e. life-jacket.
3. The failure of additional non-installed instruments or equipment not required by this Part or by the applicable airworthiness requirements or any applicable airspace requirements should not adversely affect the airworthiness and/or the safe operation of the sailplane. Examples are instruments supplying additional flight information (e.g. GPS or anti-collision information systems)).

AMC1-NCO.IDE.S.115&NCO.IDE.S.120 Operations under VFR & cloud flying – flight and navigational instruments

INTEGRATED INSTRUMENTS

1. Individual equipment requirements may be met by combinations of instruments or by integrated flight systems or by a combination of parameters on electronic displays. The information so available to each required pilot should not be less than that required in the applicable operational requirements, and the equivalent safety of the installation should be approved during type certification of the sailplane for the intended type of operation.
2. The means of measuring and indicating turn and slip, sailplane attitude and stabilised sailplane direction may be met by combinations of instruments or by integrated flight director systems, provided that the safeguards against total failure, inherent in the three separate instruments, are retained.

AMC1-NCO.IDE.S.115(a)(1)&NCO.IDE.S.120(a) Operations under VFR & cloud flying – flight and navigational instruments

MEANS OF MEASURING AND DISPLAYING MAGNETIC DIRECTION

The means of measuring and displaying magnetic direction should be a magnetic compass or equivalent.

AMC1-NCO.IDE.S.115(a)(2)&NCO.IDE.S.120(b) Operations under VFR & cloud flying – flight and navigational instruments

MEANS OF MEASURING AND DISPLAYING THE TIME

A means of measuring and displaying the time in hours, minutes and seconds may be a wrist watch capable of the same functions.

AMC1-NCO.IDE.S.115(a)(3)&NCO.IDE.S.120(c) Operations under VFR & cloud flying – flight and navigational instruments

CALIBRATION OF THE MEANS FOR MEASURING AND DISPLAYING PRESSURE ALTITUDE

1. The instrument measuring and displaying pressure altitude should be of a sensitive type calibrated in feet (ft), with a sub-scale setting, calibrated in hectopascals/millibars, adjustable for any barometric pressure likely to be set during flight.
2. Calibration in metres (m) is also acceptable.

AMC1-NCO.IDE.S.115(a)(4)&NCO.IDE.S.120(d) Operations under VFR & cloud flying – flight and navigational instruments

CALIBRATION OF THE INSTRUMENT INDICATING AIRSPEED

1. The instrument indicating airspeed should be calibrated in knots (kt).

2. Calibration in kilometres (km) per hour or in miles per hours (mph) is also acceptable.

AMC1-NCO.IDE.S.125 Seats and restraint systems

UPPER TORSO RESTRAINT SYSTEM

1. A seat belt with upper torso restraint system should have four anchorage points and should include shoulder straps (two anchorage points) and a seat belt (two anchorage points), which may be used independently.
2. A restraint system having five anchorage points is deemed to be compliant to the requirement for seat belt with upper torso restraint system with four anchorage points.

AMC1-NCO.IDE.S.135 Flight over water

MEANS OF ILLUMINATION FOR LIFE-JACKETS

Each life-jacket or equivalent individual flotation device should be equipped with a means of electric illumination for the purpose of facilitating the location of persons.

RISK ASSESSMENT

1. When conducting the risk assessment, the pilot-in-command should base his/her decision, as far as is practicable, on the Implementing Rules and AMCs applicable to the operation of the sailplane.
2. The pilot-in-command should, for determining the risk, take the following operating environment and conditions into account:
   a. sea state;
   b. sea and air temperatures;
   c. the distance from land suitable for making an emergency landing; and
   d. the availability of search and rescue facilities.

GM1-NCO.IDE.S.135(a) Flight over water

SEAT CUSHIONS

Seat cushions are not considered to be flotation devices.

AMC1-NCO.IDE.S.135(b) Flight over water

ELT BATTERIES

Batteries used in the ELTs should be replaced (or recharged, if the battery is rechargeable) when the equipment has been in use for more than 1 cumulative hour, and also when 50 % of their useful life (or for rechargeable, 50 % of their useful life of charge), as established by the equipment manufacturer has expired. The new expiry date for the replacement (or recharged) battery should be legibly marked on the outside of the equipment. The battery useful life (or useful life of charge) requirements of this

paragraph do not apply to batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals.

AMC2-NCO.IDE.S.135(b) Flight over water

TYPES OF ELT AND GENERAL TECHNICAL SPECIFICATIONS

1. The ELT required by this provision should be one of the following:
   a. Automatic fixed (ELT(AF)). An automatically activated ELT that is permanently attached to an aircraft and is designed to aid SAR teams in locating the crash site.
   b. Automatic portable (ELT(AP)). An automatically activated ELT that is rigidly attached to an aircraft before a crash, but is readily removable from the aircraft after a crash. It functions as an ELT during the crash sequence. If the ELT does not employ an integral antenna, the aircraft-mounted antenna may be disconnected and an auxiliary antenna (stored on the ELT case) attached to the ELT. The ELT can be tethered to a survivor or a life-raft. This type of ELT is intended to aid SAR teams in locating the crash site or survivor(s).
   c. Automatic Deployable (ELT(AD)). An ELT that is rigidly attached to the aircraft before the crash and that is automatically ejected, deployed and activated by an impact, and, in some cases, also by hydrostatic sensors. Manual deployment is also provided. This type of ELT should float in water and is intended to aid SAR teams in locating the crash site.
   d. Survival ELT (ELT(S)). An ELT that is removable from an aircraft, stowed so as to facilitate its ready use in an emergency and manually activated by a survivor. An ELT(S) may be activated manually or automatically (e.g. by water activation). It should be designed to be tethered to a life-raft or a survivor.
2. To minimise the possibility of damage in the event of crash impact, the automatic ELT should be rigidly fixed to the aircraft structure, as far aft as is practicable, with its antenna and connections arranged so as to maximise the probability of the signal being transmitted after a crash.
3. Any ELT carried should operate in accordance with the relevant provisions of ICAO Annex 10, Volume III and should be registered with the national agency responsible for initiating search and rescue or other nominated agency.

AMC3-NCO.IDE.S.135(b) Flight over water

PLB TECHNICAL SPECIFICATIONS

A personal locator beacon (PLB) should have a built-in GNSS receiver with a cosmicheskaya sistyema poiska avariynich sudov - search and rescue satellite-aided tracking (COSPAS-SARSAT) type approval number. However, devices with a COSPAS-SARSAT with a number belonging to series 700 are excluded as this series of numbers identifies the special-use beacons not meeting all the technical requirements and all the tests specified by COSPAS-SARSAT.

GM1-NCO.IDE.S.135(b) Flight over water

TERMINOLOGY

1. An ELT is a generic term describing equipment that broadcasts distinctive signals on designated frequencies and, depending on application, may be activated by impact or may be manually activated.
2. A PLB is an emergency beacon other than an ELT that broadcasts distinctive signals on designated frequencies, is standalone, portable and is manually activated by the survivors.

AMC1-NCO.IDE.S.140 Survival Equipment

GENERAL

Sailplanes operated across land areas in which search and rescue would be especially difficult should be equipped with the following:

1. signalling equipment to make the distress signals;
2. at least one ELT(S) or a PLB; and
3. additional survival equipment for the route to be flown taking account of the number of persons on board.

AMC2-NCO.IDE.S.140 Survival equipment

ADDITIONAL SURVIVAL EQUIPMENT

1. The following additional survival equipment should be carried when required:
   a. 500 ml of water;
   b. one knife;
   c. first-aid equipment; and
   d. one set of air/ground codes.
2. If any item of equipment contained in the above list is already carried on board the sailplane in accordance with another requirement, there is no need for this to be duplicated.

GM1-NCO.IDE.S.140 Survival equipment

SIGNALLING EQUIPMENT

The signalling equipment for making distress signals is described in ICAO Annex 2, Rules of the Air.

GM2-NCO.IDE.S.140 Survival equipment

AREAS IN WHICH SEARCH AND RESCUE WOULD BE ESPECIALLY DIFFICULT

The expression 'areas in which search and rescue would be especially difficult' should be interpreted, in this context, as meaning:

1. areas so designated by the competent authority responsible for managing search and rescue; or
2. areas that are largely uninhabited and where:
   a. the competent authority responsible for managing search and rescue has not published any information to confirm whether search and rescue would be or would not be especially difficult; and
   b. the competent authority referred to in 1. does not, as a matter of policy, designate areas as being especially difficult for search and rescue.

GM1-NCO.IDE.S.150. Navigation equipment

APPLICABLE AIRSPACE REQUIREMENTS

For sailplanes being operated under European air traffic control, the applicable airspace requirements include the Single European Sky legislation.

AMC1-NCO.IDE.S.155 Transponder

GENERAL

1. The SSR transponders of sailplanes being operated under European air traffic control should comply with any applicable Single European Sky legislation.
2. If the Single European Sky legislation is not applicable, the SSR transponders should operate in accordance with the relevant provisions of Volume IV of ICAO Annex 10.

Section 4 - Balloons

GM1-NCC.IDE.B.100(a) Instruments and equipment – general

APPLICABLE AIRWORTHINESS REQUIREMENTS

The applicable airworthiness requirements for approval of instruments and equipment required by this Part are the following:

1. Regulation (EC) 1702/2003 for:
   a. balloons registered in the EU; and
   b. balloons registered outside the EU but manufactured or designed by an EU organisation.
2. Airworthiness requirements of the state of registry for balloons registered, designed and manufactured outside the EU.

GM1-NCO.IDE.B.100(a)&(b) Instruments and equipment – general

INSTRUMENTS AND EQUIPMENT THAT DO NOT NEED TO BE APPROVED

1. The provision of this paragraph does not exempt the item of equipment from complying with the applicable airworthiness requirements if the instrument or equipment is installed in the balloon. In this case, the installation should be approved as required in the applicable airworthiness requirements and should comply with the applicable airworthiness codes.
2. The functionality of non-installed instruments and equipment required by this Part that does not need an equipment approval should be checked against recognised industry standards appropriate for the intended purpose. The pilot-in command is responsible for ensuring the maintenance of these instruments and equipment. Examples may be the following:
   a. independent portable light,
   b. accurate time piece,
   c. first-aid kit,
   d. survival and signalling equipment, and
   e. life-jacket.
3. The failure of additional non-installed instruments or equipment not required by this Part or by the applicable airworthiness requirements or any applicable airspace requirements should not adversely affect the airworthiness and/or the safe operation of the balloon. Examples are instruments supplying additional flight information (e.g. GPS or anti-collision information systems)).

AMC1-NCO.IDE.B.110 Operating lights

BALLOON LIGHTS

1. The position lights should be one steady aviation white position light, and one flashing aviation red position light, or flashing aviation white, with an effective flash frequency of at least 40, but not more than 100, cycles per minute.
2. Both lights should have 360° horizontal coverage and should be visible for at least 3 km (1.6 NM) under clear atmospheric conditions.
3. The steady white light should be located not more than 20 ft below the basket, trapeze, or other means for carrying occupants. The flashing red or white light should be located between 7 ft and 10 ft below the steady white light.
4. There should be a means to retract and store the lights.

ILLUMINATION FOR INSTRUMENTS AND EQUIPMENT

A means to provide adequate illumination to instruments and equipment essential to the safe operation of the balloon may be an independent portable light.

AMC1-NCO.IDE.B.115(a) Operations under VFR – flight and navigational instruments

MEANS OF DISPLAYING DRIFT DIRECTION

The drift direction may be determined by using a map and reference to visual landmarks.

AMC1-NCO.IDE.B.115(b)(1) Operations under VFR – flight and navigational instruments

MEANS OF MEASURING AND DISPLAYING THE TIME

A means of measuring and displaying the time in hours, minutes and seconds may be a wrist watch capable of the same functions.

GM1-NCO.IDE.B.115(b)(3) Operations under VFR – flight and navigational instruments

MEANS OF MEASURING AND DISPLAYING PRESSURE ALTITUDE

A means of measuring and displaying pressure altitude is needed when required by ATC, or when altitude needs to be checked for flights where oxygen is used, or the limitations in the AFM require to limit altitude and/or rate of climb/descent.

AMC1-NCO.IDE.B.120 First-aid kit

GENERAL

First-aid kits (FAKs) compliant with DIN 13164 or DIN 13157 are considered to meet the objective of NCO.IDE.H.145.

AMC2-NCO.IDE.B.120 First-aid kit

MAINTENANCE OF FIRST-AID KIT

To be kept up-to-date first-aid kits should be:

1. inspected periodically to confirm, to the extent possible, that contents are maintained in the condition necessary for their intended use; and
2. replenished at regular intervals, in accordance with instructions contained on their labels, or as circumstances warrant.

AMC1-NCO.IDE.B.130 Flight over water

RISK ASSESSMENT

1. When conducting the risk assessment, the pilot-in-command should base his/her decision, as far as is practicable, on the Implementing Rules and AMCs applicable to the operation of the balloon.
2. The pilot-in-command should, for determining the risk, take the following operating environment and conditions into account:
   a. sea state;
   b. sea and air temperatures;
   c. the distance from land suitable for making an emergency landing; and
   d. the availability of search and rescue facilities.

AMC1-NCO.IDE.B.130(a) Flight over water

MEANS OF ILLUMINATION FOR LIFE-JACKETS

Each life-jacket or equivalent individual flotation device should be equipped with a means of electric illumination for the purpose of facilitating the location of persons.

GM1-NCO.IDE.B.130(a) Flight over water

SEAT CUSHIONS

Seat cushions are not considered to be flotation devices.

AMC1-NCO.IDE.B.130(b) Flight over water

ELT BATTERIES

Batteries used in the ELTs should be replaced (or recharged, if the battery is rechargeable) when the equipment has been in use for more than 1 cumulative hour, and also when 50 % of their useful life (or for rechargeable, 50 % of their useful life of charge), as established by the equipment manufacturer has expired. The new expiry date for the replacement (or recharged) battery should be legibly marked on the outside of the equipment. The battery useful life (or useful life of charge) requirements of this paragraph do not apply to batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals.

AMC2-NCO.IDE.B.130(b) Flight over water

TYPES OF ELT AND GENERAL TECHNICAL SPECIFICATIONS

1. The ELT required by this provision should be one of the following:
   a. Automatic fixed (ELT(AF)). An automatically activated ELT that is permanently attached to an aircraft and is designed to aid SAR teams in locating the crash site.
   b. Automatic portable (ELT(AP)). An automatically activated ELT that is rigidly attached to an aircraft before a crash, but is readily removable from the aircraft after a crash. It functions as an ELT during the crash sequence. If the ELT does not employ an integral antenna, the aircraft-mounted antenna may be disconnected and an auxiliary antenna (stored on the ELT case) attached to the ELT. The ELT can be tethered to a survivor or a life-raft. This type of ELT is intended to aid SAR teams in locating the crash site or survivor(s).
   c. Automatic deployable (ELT(AD)). An ELT that is rigidly attached to the aircraft before the crash and which is automatically ejected, deployed and activated by an impact, and, in some cases, also by hydrostatic sensors. Manual deployment is also provided. This type of ELT should float in water and is intended to aid SAR teams in locating the crash site.
   d. Survival ELT (ELT(S)). An ELT that is removable from an aircraft, stowed so as to facilitate its ready use in an emergency and manually activated by a survivor. An ELT(S) may be activated manually or automatically (e.g. by water activation). It should be designed to be tethered to a life-raft or a survivor.
2. To minimise the possibility of damage in the event of crash impact, the automatic ELT should be rigidly fixed to the aircraft structure, as far aft as is practicable, with its antenna and connections arranged so as to maximise the probability of the signal being transmitted after a crash.
3. Any ELT carried should operate in accordance with the relevant provisions of ICAO Annex 10, Volume III and should be registered with the national agency responsible for initiating search and rescue or other nominated agency.

AMC3-NCO.IDE.B.130(b) Flight over water

PLB TECHNICAL SPECIFICATIONS

A personal locator beacon (PLB) should have a built-in GNSS receiver with a cosmicheskaya sistyema poiska avariynich sudov - search and rescue satellite-aided tracking (COSPAS-SARSAT) type approval number. However, devices with a COSPAS-SARSAT with a number belonging to series 700 are excluded as this series of numbers identifies the special-use beacons not meeting all the technical requirements and all the tests specified by COSPAS-SARSAT.

GM1-NCO.IDE.B.130(b) Flight over water

TERMINOLOGY

1. An ELT is a generic term describing equipment that broadcasts distinctive signals on designated frequencies and, depending on application, may be activated by impact or may be manually activated.
2. A PLB is an emergency beacon other than an ELT that broadcasts distinctive signals on designated frequencies, is standalone, portable and is manually activated by the survivors.

GM1-NCO.IDE.B.130(c) Flight over water

SIGNALLING EQUIPMENT

The signalling equipment for making distress signals is described in ICAO Annex 2, Rules of the Air.

AMC1-NCO.IDE.B.135 Survival equipment

GENERAL

Balloons operated across land areas in which search and rescue would be especially difficult should be equipped with the following:

1. signalling equipment to make the distress signals;
2. at least one ELT(S) or a PLB; and
3. additional survival equipment for the route to be flown taking account of the number of persons on board.

AMC2-NCO.IDE.B.135 Survival equipment

ADDITIONAL SURVIVAL EQUIPMENT

1. The following additional survival equipment should be carried when required:
   a. 500 ml of water for each four, or fraction of four, persons on board;
   b. one knife;
   c. first-aid equipment; and
   d. one set of air/ground codes.
2. If any item of equipment contained in the above list is already carried on board the balloon in accordance with another requirement, there is no need for this to be duplicated.

GM1-NCO.IDE.B.135 Survival equipment

SIGNALLING EQUIPMENT

The signalling equipment for making distress signals is described in ICAO Annex 2, Rules of the Air.

GM2-NCO.IDE.B.135 Survival equipment

AREAS IN WHICH SEARCH AND RESCUE WOULD BE ESPECIALLY DIFFICULT

The expression 'areas in which search and rescue would be especially difficult' should be interpreted, in this context, as meaning:

1. areas so designated by the competent authority responsible for managing search and rescue; or
2. areas that are largely uninhabited and where:
   a. the competent authority responsible for managing search and rescue has not published any information to confirm whether search and rescue would be or would not be especially difficult; and
   b. the competent authority referred to in 1. does not, as a matter of policy, designate areas as being especially difficult for search and rescue.

GM1-NCO.IDE.B.145 Radio communication equipment

APPLICABLE AIRSPACE REQUIREMENTS

For balloons being operated under European air traffic control, the applicable airspace requirements include the Single European Sky legislation.

AMC1-NCO.IDE.B.150 Transponder

GENERAL

1. The SSR transponders of balloons being operated under European air traffic control should comply with any applicable Single European Sky legislation.
2. If the Single European Sky legislation is not applicable, the SSR transponders should operate in accordance with the relevant provisions of Volume IV of ICAO Annex 10.