

ANNEX IV

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(PART-CAT)**

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COMMERCIAL AIR TRANSPORT OPERATIONS PART-CAT

SUBPART A GENERAL REQUIREMENTS

CAT.GEN.100 Competent authority

The Maldives Civil Aviation Authority (MCAA) is the competent authority in Maldives for the purpose of this regulation.

CAT.GEN.105 Touring motor gliders, powered sailplanes and mixed balloons

- (a) Powered sailplanes, excluding touring motor gliders, shall be operated and equipped in compliance with the requirements applicable to sailplanes.
- (b) Touring motor gliders (TMGs) shall be operated following the requirements for:
 - (1) aeroplanes when they are power-driven by an engine; and
 - (2) sailplanes when operated without using an engine.
- (c) TMGs shall be equipped in compliance with the requirements applicable to aeroplanes, unless otherwise specified in CAT.IDE.A.
- (d) Mixed balloons shall be operated in accordance with the requirements for hot-air balloons.

SECTION 1 Motor-powered aircraft

CAT.GEN.MPA.100 Crew responsibilities

- (a) The crew member shall be responsible for the proper execution of his/her duties that are:
 - (1) related to the safety of the aircraft and its occupants; and
 - (2) specified in the instructions and procedures in the operations manual.
- (b) The crew member shall:
 - (1) report to the commander any fault, failure, malfunction or defect which the crew member believes may affect the airworthiness or safe operation of the aircraft including emergency systems, if not already reported by another crew member;
 - (2) report to the commander any incident that endangered, or could have endangered, the safety of the operation, if not already reported by another crew member;
 - (3) comply with the relevant requirements of the operator's occurrence reporting schemes;
 - (4) comply with all flight and duty time limitations (FTL) and rest requirements applicable to their activities;
 - (5) when undertaking duties for more than one operator:
 - (i) maintain his/her individual records regarding flight and duty times and rest periods as referred to in applicable FTL requirements; and
 - (ii) provide each operator with the data needed to schedule activities in accordance with the applicable FTL requirements.
- (c) The crew member shall not perform duties on an aircraft:
 - (1) when under the influence of psychoactive substances or alcohol or when unfit due to injury, fatigue, medication, sickness or other similar causes;
 - (2) until a reasonable time period has elapsed after deep water diving or following blood donation;
 - (3) if applicable medical requirements are not fulfilled;
 - (4) if he/she is in any doubt of being able to accomplish his/her assigned duties; or
 - (5) if he/she knows or suspects that he/she is suffering from fatigue as referred to in 7.f of Appendix 1 to this Regulation or feels otherwise unfit, to the extent that the flight may be endangered.

CAT.GEN.MPA.105 Responsibilities of the commander

- (a) The commander, in addition to complying with CAT.GEN.MPA.100, shall:
- (1) be responsible for the safety of all crew members, passengers and cargo on board, as soon as the commander arrives on board the aircraft, until the commander leaves the aircraft at the end of the flight;
 - (2) be responsible for the operation and safety of the aircraft:
 - (i) for aeroplanes, from the moment the aeroplane is first ready to move for the purpose of taxiing prior to take-off, until the moment it finally comes to rest at the end of the flight and the engine(s) used as primary propulsion unit(s) is(are) shut down;
 - (ii) for helicopters, when the rotors are turning;
 - (3) have authority to give all commands and take any appropriate actions for the purpose of securing the safety of the aircraft and of persons and/or property carried therein in accordance with 7.c of Appendix I to this Regulation;
 - (4) have authority to disembark any person, or any part of the cargo, that may represent a potential hazard to the safety of the aircraft or its occupants;
 - (5) not allow a person to be carried in the aircraft who appears to be under the influence of alcohol or drugs to the extent that the safety of the aircraft or its occupants is likely to be endangered;
 - (6) have the right to refuse transportation of inadmissible passengers, deportees or persons in custody if their carriage increases the risk to the safety of the aircraft or its occupants;
 - (7) ensure that all passengers are briefed on the location of emergency exits and the location and use of relevant safety and emergency equipment;
 - (8) ensure that all operational procedures and checklists are complied with in accordance with the operations manual;
 - (9) not permit any crew member to perform any activity during critical phases of flight, except duties required for the safe operation of the aircraft;
 - (10) ensure that flight recorders:
 - (i) are not disabled or switched off during flight; and
 - (ii) in the event of an accident or an incident that is subject to mandatory reporting:
 - (A) are not intentionally erased;
 - (B) are deactivated immediately after the flight is completed; and
 - (C) are reactivated only with the agreement of the investigating authority;
 - (11) decide on acceptance of the aircraft with unserviceabilities in accordance with the configuration deviation list (CDL) or the minimum equipment list (MEL);
 - (12) ensure that the pre-flight inspection has been carried out in accordance with the requirements of Annex I (Part-M) to MCAR M;
 - (13) be satisfied that relevant emergency equipment remains easily accessible for immediate use.
- (b) The commander, or the pilot to whom conduct of the flight has been delegated, shall, in an emergency situation that requires immediate decision and action, take any action he/she considers necessary under the circumstances in accordance with 7.d of Appendix I to this Regulation. In such cases he/she may deviate from rules, operational procedures and methods in the interest of safety.
- (c) Whenever an aircraft in flight has manoeuvred in response to an airborne collision avoidance system (ACAS) resolution advisory (RA), the commander shall submit an ACAS report to MCAA.
- (d) Bird hazards and strikes:
- (1) Whenever a potential bird hazard is observed, the commander shall inform the air traffic service (ATS) unit as soon as flight crew workload allows.
 - (2) Whenever an aircraft for which the commander is responsible suffers a bird strike that results in significant damage to the aircraft or the loss or malfunction of any essential service, the commander shall submit a written bird strike report after landing to MCAA.

CAT.GEN.MPA.110 Authority of the commander

The operator shall take all reasonable measures to ensure that all persons carried in the aircraft obey all lawful commands given by the commander for the purpose of securing the safety of the aircraft and of persons or property carried therein.

CAT.GEN.MPA.115 Personnel or crew members other than cabin crew in the passenger compartment

The operator shall ensure that personnel or crew members, other than operating cabin crew members, carrying out their duties in the passenger compartment of an aircraft:

- (a) are not confused by the passengers with operating cabin crew members;
- (b) do not occupy required cabin crew assigned stations;
- (c) do not impede operating cabin crew members in their duties.

CAT.GEN.MPA.120 Common language

The operator shall ensure that all crew members can communicate with each other in a common language.

CAT.GEN.MPA.125 Taxiing of aeroplanes

The operator shall ensure that an aeroplane is only 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 operator 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;
 - (4) is able to conform to the operational standards required for safe aeroplane movement at the aerodrome.

CAT.GEN.MPA.130 Rotor engagement — helicopters

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

CAT.GEN.MPA.135 Admission to the flight crew compartment

- (a) The operator shall ensure that no person, other than a flight crew member assigned to a flight, is admitted to, or carried in, the flight crew compartment unless that person is:
 - (1) an operating crew member;
 - (2) a representative of the competent or inspecting authority, if required to be there for the performance of his/her official duties; or
 - (3) permitted by and carried in accordance with instructions contained in the operations manual.
- (b) The commander shall ensure that:
 - (1) admission to the flight crew compartment does not cause distraction or interference with the operation of the flight; and
 - (2) all persons carried in the flight crew compartment are made familiar with the relevant safety procedures.
- (c) The commander shall make the final decision regarding the admission to the flight crew compartment.

CAT.GEN.MPA.140 Portable electronic devices

The operator 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, and shall take all reasonable measures to prevent such use.

CAT.GEN.MPA.145 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 any of their aircraft.

CAT.GEN.MPA.150 Ditching — aeroplanes

The operator shall only operate an aeroplane with a passenger seating configuration of more than 30 on overwater flights at a distance from land suitable for making an emergency landing, greater than 120 minutes at cruising speed, or 400 NM, whichever is less, if the aeroplane complies with the ditching provisions prescribed in the applicable airworthiness code.

CAT.GEN.MPA.155 Carriage of weapons of war and munitions of war

- (a) The operator shall only transport weapons of war or munitions of war by air if an approval to do so has been granted by all States whose airspace is intended to be used for the flight.
- (b) Where an approval has been granted, the operator shall ensure that weapons of war and munitions of war are:
 - (1) stowed in the aircraft in a place that is inaccessible to passengers during flight; and
 - (2) in the case of firearms, unloaded.
- (c) The operator shall ensure that, before a flight begins, the commander is notified of the details and location on board the aircraft of any weapons of war and munitions of war intended to be carried.

CAT.GEN.MPA.160 Carriage of sporting weapons and ammunition

- (a) The operator shall take all reasonable measures to ensure that any sporting weapons intended to be carried by air are reported to the operator.
- (b) The operator accepting the carriage of sporting weapons shall ensure that they are:
 - (1) stowed in the aircraft in a place that is inaccessible to passengers during flight; and
 - (2) in the case of firearms or other weapons that can contain ammunition, unloaded.
- (c) Ammunition for sporting weapons may be carried in passengers' checked baggage, subject to certain limitations, in accordance with the technical instructions.

CAT.GEN.MPA.161 Carriage of sporting weapons and ammunition — alleviations

Notwithstanding CAT.GEN.MPA.160 (b), for helicopters with a maximum certified take-off mass (MCTOM) of 3 175 kg or less operated by day and over routes navigated by reference to visual landmarks, a sporting weapon may be carried in a place that is accessible during flight, provided that the operator has established appropriate procedures and it is impracticable to stow it in an inaccessible stowage during flight.

CAT.GEN.MPA.165 Method of carriage of persons

The operator shall take all measures to ensure that no person is in any part of an aircraft in flight that is not designed for the accommodation of persons unless temporary access has been granted by the commander:

- (a) for the purpose of taking action necessary for the safety of the aircraft or of any person, animal or goods therein; or
- (b) to a part of the aircraft in which cargo or supplies are carried, being a part that is designed to enable a person to have access thereto while the aircraft is in flight.

CAT.GEN.MPA.170 Alcohol and drugs

The operator shall take all reasonable measures to ensure that no person enters or is in an aircraft when under the influence of alcohol or drugs to the extent that the safety of the aircraft or its occupants is likely to be endangered.

CAT.GEN.MPA.175 Endangering safety

The operator shall take all reasonable measures to ensure that no person recklessly or negligently acts or omits to act so as to:

- (a) endanger an aircraft or person therein; or
- (b) cause or permit an aircraft to endanger any person or property.

CAT.GEN.MPA.180 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 aircraft flight manual (AFM), or equivalent document(s);
 - (2) the original certificate of registration;
 - (3) the original certificate of airworthiness (CofA);
 - (4) the noise certificate, including an English translation, where one has been provided by MCAA responsible for issuing the noise certificate;
 - (5) a certified true copy of the air operator certificate (AOC);
 - (6) the operations specifications relevant to the aircraft type, issued with the AOC;
 - (7) the original aircraft radio licence, if applicable;
 - (8) the third party liability insurance certificate(s);
 - (9) the journey log, or equivalent, for the aircraft;
 - (10) the aircraft technical log, in accordance with Annex I (Part-M) to MCAR M;
 - (11) details of the filed ATS flight plan, if applicable;
 - (12) 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;
 - (13) procedures and visual signals information for use by intercepting and intercepted aircraft;
 - (14) information concerning search and rescue services for the area of the intended flight, which shall be easily accessible in the flight crew compartment;
 - (15) the current parts of the operations manual that are relevant to the duties of the crew members, which shall be easily accessible to the crew members;
 - (16) the MEL;
 - (17) appropriate notices to airmen (NOTAMs) and aeronautical information service (AIS) briefing documentation;
 - (18) appropriate meteorological information;
 - (19) cargo and/or passenger manifests, if applicable;
 - (20) mass and balance documentation;
 - (21) the operational flight plan, if applicable;
 - (22) notification of special categories of passenger (SCPs) and special loads, if applicable; and
 - (23) any other documentation that may be pertinent to the flight or is required by the States concerned with the flight.
- (b) Notwithstanding (a), for operations under visual flight rules (VFR) by day with other-than-complex motor-powered aircraft taking off and landing at the same aerodrome or operating site within 24 hours, or remaining within a local area specified in the operations manual, the following documents and information may be retained at the aerodrome or operating site instead:
 - (1) noise certificate;
 - (2) aircraft radio licence;
 - (3) journey log, or equivalent;
 - (4) aircraft technical log;
 - (5) NOTAMs and AIS briefing documentation;
 - (6) meteorological information;
 - (7) notification of SCPs and special loads, if applicable; and
 - (8) mass and balance documentation.
- (c) Notwithstanding (a), in case of loss or theft of documents specified in (a)(2) to (a)(8), the operation may continue until the flight reaches its destination or a place where replacement documents can be provided.

CAT.GEN.MPA.185 Information to be retained on the ground

- (a) The operator shall ensure that at least for the duration of each flight or series of flights:
 - (1) information relevant to the flight and appropriate for the type of operation is preserved on the ground;
 - (2) the information is retained until it has been duplicated at the place at which it will be stored; or, if this is impracticable
 - (3) the same information is carried in a fireproof container in the aircraft.
- (b) The information referred to in (a) includes:
 - (1) a copy of the operational flight plan, where appropriate;
 - (2) copies of the relevant part(s) of the aircraft technical log;
 - (3) route-specific NOTAM documentation if specifically edited by the operator;
 - (4) mass and balance documentation if required; and
 - (5) special loads notification.

CAT.GEN.MPA.190 Provision of documentation and records

The commander shall, within a reasonable time of being requested to do so by a person authorised by an authority, provide to that person the documentation required to be carried on board.

CAT.GEN.MPA.195 Preservation, production and use of flight recorder recordings

- (a) Following an accident or an incident that is subject to mandatory reporting, the operator of an aircraft shall preserve the original recorded data for a period of 60 days unless otherwise directed by the investigating authority.
- (b) The operator shall conduct operational checks and evaluations of flight data recorder (FDR) recordings, cockpit voice recorder (CVR) recordings and data link recordings to ensure the continued serviceability of the recorders.
- (c) The operator shall save the recordings for the period of operating time of the FDR as required by CAT.IDE.A.190 or CAT.IDE.H.190, except that, for the purpose of testing and maintaining the FDR, up to one hour of the oldest recorded material at the time of testing may be erased.
- (d) The operator shall keep and maintain up-to-date documentation that presents the necessary information to convert FDR raw data into parameters expressed in engineering units.
- (e) The operator shall make available any flight recorder recording that has been preserved, if so determined by MCAA.
- (f) Without prejudice to other Regulations:
 - (1) CVR recordings shall only be used for purposes other than for the investigation of an accident or an incident subject to mandatory reporting, if all crew members and maintenance personnel concerned consent.
 - (2) FDR recordings or data link recordings shall only be used for purposes other than for the investigation of an accident or an incident which is subject to mandatory reporting, if such records are:
 - (i) used by the operator for airworthiness or maintenance purposes only; or
 - (ii) de-identified; or
 - (iii) disclosed under secure procedures.

CAT.GEN.MPA.200 Transport of dangerous goods

- (a) Unless otherwise permitted by this Annex, 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 an operator approved in accordance with Annex V (Part-SPA), Subpart G, 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 crew members, or are in baggage, in accordance with Part 8 of the technical instructions.
- (c) An operator shall establish procedures to ensure that all reasonable measures are taken to prevent dangerous goods from being carried on board inadvertently.
- (d) The operator shall provide personnel with the necessary information enabling them to carry out their responsibilities, as required by the technical instructions.
- (e) The operator shall, in accordance with the technical instructions, report without delay to MCAA and the appropriate authority of the State of occurrence in the event of:
 - (1) any dangerous goods accidents or incidents;
 - (2) the discovery of undeclared or misdeclared dangerous goods in cargo or mail; or
 - (3) the finding of dangerous goods carried by passengers or crew members, or in their baggage, when not in accordance with Part 8 of the technical instructions.
- (f) The operator shall ensure that passengers are provided with information about dangerous goods in accordance with the technical instructions.
- (g) The operator shall ensure that notices giving information about the transport of dangerous goods are provided at acceptance points for cargo as required by the technical instructions.

SECTION 2
Non motor-powered aircraft

CAT.GEN.NMPA.100 Responsibilities of the commander

- (a) The commander shall:
 - (1) be responsible for the safety of all crew members and passengers on board, as soon as the commander arrives on board of the aircraft, until the commander leaves the aircraft at the end of the flight;
 - (2) be responsible for the operation and safety of the aircraft:
 - (i) for balloons, from the moment the inflating of the envelope is started until the envelope is deflated, unless the commander has delegated the responsibility to another qualified person during the filling phase until the commander arrives as specified in the operations manual (OM);
 - (ii) for sailplanes, from the moment the launch procedure is started until the sailplane comes to a rest at the end of the flight;
 - (3) have authority to give all commands and take any appropriate actions for the purpose of securing the safety of the aircraft and of persons and/or property carried therein;
 - (4) have authority not to embark and to disembark any person that may represent a potential hazard to the safety of the aircraft or its occupants;
 - (5) not allow a person to be carried in the aircraft who appears to be under the influence of alcohol or drugs to the extent that the safety of the aircraft or its occupants is likely to be endangered;
 - (6) ensure that all passengers have received a safety briefing;
 - (7) ensure that all operational procedures and checklists are complied with in accordance with the operations manual;
 - (8) ensure that the pre-flight inspection has been carried out in accordance with the requirements of MCAR M;
 - (9) be satisfied that relevant emergency equipment remains easily accessible for immediate use;
 - (10) comply with the relevant requirements of the operator's occurrence reporting schemes;
 - (11) comply with all flight and duty time limitations (FTL) and rest requirements applicable to his/her activities;
 - (12) when undertaking duties for more than one operator:
 - (i) maintain his/her individual records regarding flight and duty times and rest periods as referred to in applicable FTL requirements; and
 - (ii) provide each operator with the data needed to schedule activities in accordance with the applicable FTL requirements.

- (b) The commander shall not perform duties on an aircraft:
 - (1) when under the influence of psychoactive substances or alcohol or when unfit due to injury, fatigue, medication, sickness or other similar causes;
 - (2) until a reasonable time period has elapsed after deep water diving or following blood donation;
 - (3) if applicable medical requirements are not fulfilled;
 - (4) if he/she is in any doubt of being able to accomplish his/her assigned duties; or
 - (5) if he/she knows or suspects that he/she is suffering from fatigue or feels otherwise unfit, to the extent that the flight may be endangered.
- (c) The commander shall, in an emergency situation that requires immediate decision and action, take any action the commander considers necessary under the circumstances. In such cases he/she may deviate from rules, operational procedures and methods in the interest of safety.
- (d) The commander of a balloon shall:
 - (1) be responsible for the pre-flight briefing of those persons assisting in the inflation and deflation of the envelope;
 - (2) ensure that no person is smoking on board or within the direct vicinity of the balloon; and
 - (3) ensure that persons assisting in the inflation and deflation of the envelope wear appropriate protective clothing.

CAT.GEN.NMPA.105 Additional balloon crew member

- (a) When a balloon carries more than 19 passengers, at least one additional crew member appropriately experienced and trained shall be present on board to assist passengers in the event of an emergency.
- (b) The additional crew member shall not perform duties on a balloon:
 - (1) when under the influence of psychoactive substances or alcohol;
 - (2) when unfit due to injury, fatigue, medication, sickness or other similar causes; or
 - (3) until a reasonable time period has elapsed after deep water diving or following blood donation.

CAT.GEN.NMPA.110 Authority of the commander

The operator shall take all reasonable measures to ensure that all persons carried in the aircraft obey all lawful commands given by the commander for the purpose of securing the safety of the aircraft and of persons or property carried therein.

CAT.GEN.NMPA.115 Common language

The operator shall ensure that all crew members can communicate with each other in a common language.

CAT.GEN.NMPA.120 Portable electronic devices

The operator 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 and shall take all reasonable measures to prevent such use.

CAT.GEN.NMPA.125 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 any of their aircraft.

CAT.GEN.NMPA.130 Alcohol and drugs

The operator shall take all reasonable measures to ensure that no person enters or is in an aircraft when under the influence of alcohol or drugs to the extent that the safety of the aircraft or its occupants is likely to be endangered.

CAT.GEN.NMPA.135 Endangering safety

The operator shall take all reasonable measures to ensure that no person recklessly or negligently acts or omits to act so as to:

- (a) endanger an aircraft or person therein or on the ground; or
- (b) cause or permit an aircraft to endanger any person or property.

CAT.GEN.NMPA.140 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 aircraft flight manual (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) a copy of the air operator certificate (AOC);
 - (6) the operations specifications relevant to the aircraft type, issued with the AOC, if applicable;
 - (7) the aircraft radio licence, if applicable;
 - (8) the third party liability insurance certificate(s);
 - (9) the journey log, or equivalent, for the aircraft;
 - (10) the aircraft technical log, in accordance with MCAR M, if applicable;
 - (11) the MEL or CDL, if applicable;
 - (12) details of the filed air traffic service (ATS) flight plan, if applicable;
 - (13) 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;
 - (14) procedures and visual signals information for use by intercepting and intercepted aircraft;
 - (15) information concerning search and rescue services for the area of the intended flight;
 - (16) appropriate notices to airmen (NOTAMs) and aeronautical information service (AIS) briefing documentation;
 - (17) appropriate meteorological information;
 - (18) passenger manifests, if applicable;
 - (19) for sailplanes, mass and balance documentation and for balloons, mass documentation;
 - (20) the operational flight plan, if applicable; and
 - (21) any other documentation that may be pertinent to the flight or is required by the States concerned with the flight.
- (b) Notwithstanding (a), the documents, manuals and information specified there may be carried in the retrieve vehicle or retained at the aerodrome or operating site on flights intending to:
 - (1) take off and land at the same aerodrome or operating site; or
 - (2) remain within a local area specified in the operations manual.

CAT.GEN.NMPA.145 Provision of documentation and records

The commander shall, within a reasonable time of being requested to do so by a person authorised by an authority, provide to that person the documentation required to be carried on board.

CAT.GEN.NMPA.150 Transport of dangerous goods

- (a) The transport of dangerous goods shall not be permitted, except when:
 - (1) they are not subject to the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Doc 9284-AN/905) in accordance with Part 1 of those Instructions; or
 - (2) they are carried by passengers or crew members, or are in baggage, in accordance with Part 8 of the Technical Instructions.
- (b) The operator shall establish procedures to ensure that all reasonable measures are taken to prevent dangerous goods from being carried on board inadvertently.
- (c) The operator shall provide personnel with the necessary information enabling them to carry out their responsibilities.

SUBPART B
OPERATING PROCEDURES

SECTION 1
Motor-powered aircraft

CAT.OP.MPA.100 Use of air traffic services

- (a) The operator shall ensure that:
 - (1) air traffic services (ATS) appropriate to the airspace and the applicable rules of the air are used for all flights whenever available;
 - (2) in-flight operational instructions involving a change to the ATS flight plan, when practicable, are coordinated with the appropriate ATS unit before transmission to an aircraft.
- (b) Notwithstanding (a), the use of ATS is not required unless mandated by air space requirements for:
 - (1) operations under VFR by day of other-than-complex motor-powered aeroplanes;
 - (2) helicopters with an MCTOM of 3 175 kg or less operated by day and over routes navigated by reference to visual landmarks; or
 - (3) local helicopter operations,
provided that search and rescue service arrangements can be maintained.

CAT.OP.MPA.105 Use of aerodromes and operating sites

- (a) The operator shall only use aerodromes and operating sites that are adequate for the type(s) of aircraft and operation(s) concerned.
- (b) The use of operating sites shall only apply to:
 - (1) other-than-complex motor-powered aeroplanes; and
 - (2) helicopters.

CAT.OP.MPA.106 Use of isolated aerodromes — aeroplanes

- (a) Using an isolated aerodrome as destination aerodrome with aeroplanes requires the prior approval by MCAA.
- (b) An isolated aerodrome is one for which the alternate and final fuel reserve required to the nearest adequate destination alternate aerodrome is more than:
 - (1) for aeroplanes with reciprocating engines, fuel to fly for 45 minutes plus 15 % of the flying time planned to be spent at cruising level or two hours, whichever is less; or
 - (2) for aeroplanes with turbine engines, fuel to fly for two hours at normal cruise consumption above the destination aerodrome, including final reserve fuel.

CAT.OP.MPA.107 Adequate aerodrome

The operator shall consider an aerodrome as adequate if, at the expected time of use, the aerodrome is available and equipped with necessary ancillary services such as air traffic services (ATS), sufficient lighting, communications, weather reporting, navigation aids and emergency services.

CAT.OP.MPA.110 Aerodrome operating minima

- (a) The operator shall establish aerodrome operating minima for each departure, destination or alternate aerodrome planned to be used. These minima shall not be lower than those established for such aerodromes by the State in which the aerodrome is located, except when specifically approved by that State. Any increment specified by MCAA shall be added to the minima.
- (b) The use of a head-up display (HUD), head-up guidance landing system (HUDLS) or enhanced vision system (EVS) may allow operations with lower visibilities than the established aerodrome operating minima if approved in accordance with SPA.LVO.

- (c) When establishing aerodrome operating minima, the operator shall take the following into account:
 - (1) the type, performance and handling characteristics of the aircraft;
 - (2) the composition, competence and experience of the flight crew;
 - (3) the dimensions and characteristics of the runways/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, rollout and the missed approach;
 - (6) for the determination of obstacle clearance, the obstacles in the approach, missed approach and the climb-out areas necessary 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.
- (d) The operator shall specify the method of determining aerodrome operating minima in the operations manual.
- (e) The minima for a specific approach and landing procedure shall only be used if all the following conditions are met:
 - (1) the ground equipment shown on the chart 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 crew is appropriately qualified.

CAT.OP.MPA.115 Approach flight technique — aeroplanes

- (a) All approaches shall be flown as stabilised approaches unless otherwise approved by MCAA for a particular approach to a particular runway.
- (b) Non-precision approaches
 - (1) The continuous descent final approach (CDFA) technique shall be used for all non-precision approaches.
 - (2) Notwithstanding (1), another approach flight technique may be used for a particular approach/runway combination if approved by MCAA. In such cases, the applicable minimum runway visual range (RVR):
 - (i) shall be increased by 200 m for category A and B aeroplanes and by 400 m for category C and D aeroplanes; or
 - (ii) for aerodromes where there is a public interest to maintain current operations and the CDFA technique cannot be applied, shall be established and regularly reviewed by MCAA taking into account the operator's experience, training programme and flight crew qualification.

CAT.OP.MPA.120 Airborne radar approaches (ARAs) for overwater operations — helicopters

- (a) An ARA shall only be undertaken if:
 - (1) the radar provides course guidance to ensure obstacle clearance; and
 - (2) either:
 - (i) the minimum descent height (MDH) is determined from a radio altimeter; or
 - (ii) the minimum descent altitude (MDA) plus an adequate margin is applied.
- (b) ARAs to rigs or vessels under way shall only be conducted in multi-crew operations.
- (c) The decision range shall provide adequate obstacle clearance in the missed approach from any destination for which an ARA is planned.
- (d) The approach shall only be continued beyond decision range or below MDA/H when visual reference with the destination has been established.
- (e) For single-pilot operations, appropriate increments shall be added to the MDA/H and decision range.

CAT.OP.MPA.125 Instrument departure and approach procedures

- (a) The operator shall ensure that instrument departure and approach procedures established by the State of the aerodrome are used.
- (b) Notwithstanding (a), the commander may accept an ATC clearance to deviate from a published departure or arrival route, provided obstacle clearance criteria are observed and full account is taken of the operating conditions. In any case, the final approach shall be flown visually or in accordance with the established instrument approach procedures.
- (c) Notwithstanding (a), the operator may use procedures other than those referred to in (a) provided they have been approved by the State in which the aerodrome is located and are specified in the operations manual.

CAT.OP.MPA.130 Noise abatement procedures — aeroplanes

- (a) Except for VFR operations of other-than-complex motor-powered aeroplanes, the operator shall establish appropriate operating departure and arrival/approach procedures for each aeroplane type taking into account the need to minimise the effect of aircraft noise.
- (b) The procedures shall:
 - (1) ensure that safety has priority over noise abatement; and
 - (2) be simple and safe to operate with no significant increase in crew workload during critical phases of flight.

CAT.OP.MPA.131 Noise abatement procedures — helicopters

- (a) The operator shall ensure that take-off and landing procedures take into account the need to minimise the effect of helicopter noise.
- (b) The procedures shall:
 - (1) ensure that safety has priority over noise abatement; and
 - (2) be simple and safe to operate with no significant increase in crew workload during critical phases of flight.

CAT.OP.MPA.135 Routes and areas of operation — general

- (a) The operator shall ensure that operations are only conducted along routes, or within areas, for which:
 - (1) ground facilities and services, including meteorological services, adequate for the planned operation are provided;
 - (2) the performance of the aircraft is adequate to comply with minimum flight altitude requirements;
 - (3) the equipment of the aircraft meets the minimum requirements for the planned operation; and
 - (4) appropriate maps and charts are available.
- (b) The operator shall ensure that operations are conducted in accordance with any restriction on the routes or the areas of operation specified by MCAA.
- (c) (a) (1) shall not apply to operations under VFR by day of other-than-complex motor-powered aircraft on flights that depart from and arrive at the same aerodrome or operating site.

CAT.OP.MPA.136 Routes and areas of operation — single-engined aeroplanes

The operator shall ensure that operations of single-engined aeroplanes are only conducted along routes, or within areas, where surfaces are available that permit a safe forced landing to be executed.

CAT.OP.MPA.137 Routes and areas of operation — helicopters

The operator shall ensure that:

- (a) for helicopters operated in performance class 3, surfaces are available that permit a safe forced landing to be executed, except when the helicopter has an approval to operate in accordance with CAT.POL.H.420;

- (b) for helicopters operated in performance class 3 and conducting 'coastal transit' operations, the operations manual contains procedures to ensure that the width of the coastal corridor, and the equipment carried, is consistent with the conditions prevailing at the time.

CAT.OP.MPA.140 Maximum distance from an adequate aerodrome for two-engined aeroplanes without an ETOPS approval

- (a) Unless approved by MCAA in accordance with Annex V (Part-SPA), Subpart F, the operator shall not operate a two-engined aeroplane over a route that contains a point further from an adequate aerodrome, under standard conditions in still air, than:
- (1) for performance class A aeroplanes with either:
 - (i) a maximum operational passenger seating configuration (MOPSC) of 20 or more; or
 - (ii) a maximum take-off mass of 45 360 kg or more, the distance flown in 60 minutes at the one-engine-inoperative (OEI) cruising speed determined in accordance with (b);
 - (2) for performance class A aeroplanes with:
 - (i) an MOPSC of 19 or less; and
 - (ii) a maximum take-off mass less than 45 360 kg, the distance flown in 120 minutes or, subject to approval by MCAA, up to 180 minutes for turbo-jet aeroplanes, at the OEI cruise speed determined in accordance with (b);
 - (3) for performance class B or C aeroplanes:
 - (i) the distance flown in 120 minutes at the OEI cruise speed determined in accordance with (b); or
 - (ii) 300 NM, whichever is less.
- (b) The operator shall determine a speed for the calculation of the maximum distance to an adequate aerodrome for each two-engined aeroplane type or variant operated, not exceeding V_{MO} (maximum operating speed) based upon the true airspeed that the aeroplane can maintain with one engine inoperative.
- (c) The operator shall include the following data, specific to each type or variant, in the operations manual:
- (1) the determined OEI cruising speed; and
 - (2) the determined maximum distance from an adequate aerodrome.
- (d) To obtain the approval referred to in (a) (2), the operator shall provide evidence that:
- (1) the aeroplane/engine combination holds an extended range operations with two-engined aeroplanes (ETOPS) type design and reliability approval for the intended operation;
 - (2) a set of conditions has been implemented to ensure that the aeroplane and its engines are maintained to meet the necessary reliability criteria; and
 - (3) the flight crew and all other operations personnel involved are trained and suitably qualified to conduct the intended operation.

CAT.OP.MPA.145 Establishment of minimum flight altitudes

- (a) The operator shall establish for all route segments to be flown:
- (1) minimum flight altitudes that provide the required terrain clearance, taking into account the requirements of Subpart C; and
 - (2) a method for the flight crew to determine those altitudes.
- (b) The method for establishing minimum flight altitudes shall be approved by MCAA.
- (c) Where the minimum flight altitudes established by the operator and a State overflown differ, the higher values shall apply.

CAT.OP.MPA.150 Fuel policy

- (a) The operator shall establish a fuel policy for the purpose of flight planning and in-flight replanning to ensure that every flight carries sufficient fuel for the planned operation and reserves to cover deviations from the planned operation. The fuel policy and any change to it require prior approval by MCAA.
- (b) The operator shall ensure that the planning of flights is based upon at least:
- (1) procedures contained in the operations manual and:

- (i) data provided by the aircraft manufacturer; or
- (ii) current aircraft-specific data derived from a fuel consumption monitoring system; and
- (2) the operating conditions under which the flight is to be conducted including:
 - (i) aircraft fuel consumption data;
 - (ii) anticipated masses;
 - (iii) expected meteorological conditions; and
 - (iv) air navigation services provider(s) procedures and restrictions.
- (c) The operator shall ensure that the pre-flight calculation of usable fuel required for a flight includes:
 - (1) taxi fuel;
 - (2) trip fuel;
 - (3) reserve fuel consisting of:
 - (i) contingency fuel;
 - (ii) alternate fuel, if a destination alternate aerodrome is required;
 - (iii) final reserve fuel; and
 - (iv) additional fuel, if required by the type of operation; and
 - (4) extra fuel if required by the commander.
- (d) The operator shall ensure that in-flight replanning procedures for calculating usable fuel required when a flight has to proceed along a route or to a destination aerodrome other than originally planned includes:
 - (1) trip fuel for the remainder of the flight; and
 - (2) reserve fuel consisting of:
 - (i) contingency fuel;
 - (ii) alternate fuel, if a destination alternate aerodrome is required;
 - (iii) final reserve fuel; and
 - (iv) additional fuel, if required by the type of operation; and
 - (3) extra fuel if required by the commander.

Note: *It is Recommendation that Operators determine one final reserve fuel value for each aeroplane type and variant in their fleet rounded up to an easily recalled figure.*

CAT.OP.MPA.151 Fuel policy — alleviations

- (a) Notwithstanding CAT.OP.MPA.150 (b) to (d), for operations of performance class B aeroplanes the operator shall ensure that the pre-flight calculation of usable fuel required for a flight includes:
 - (i) taxi fuel, if significant;
 - (ii) trip fuel;
 - (iii) reserve fuel, consisting of:
 - (A) contingency fuel that is not less than 5 % of the planned trip fuel or, in the event of in-flight replanning, 5 % of the trip fuel for the remainder of the flight; and
 - (B) final reserve fuel to fly for an additional period of 45 minutes for reciprocating engines or 30 minutes for turbine engines;
 - (iv) alternate fuel to reach the destination alternate aerodrome via the destination, if a destination alternate aerodrome is required; and
 - (v) extra fuel, if specified by the commander.

Notwithstanding CAT.OP.MPA.150(b) to (d), for operations taking off and landing at the same aerodrome or operating site with ELA2 aeroplanes under VFR by day the operator shall specify the minimum final reserve fuel in the OM. This minimum final reserve fuel shall not be less than the amount needed to fly for a period of 45 minutes

- (b) Notwithstanding CAT.OP.MPA.150(b) to (d), for helicopters with an MCTOM of 3 175 kg or less, by day and over routes navigated by reference to visual landmarks or local helicopter operations, the fuel policy shall ensure that, on completion of the flight, or series of flights the final reserve fuel is not less than an amount sufficient for:
 - (1) 30 minutes flying time at normal cruising speed; or
 - (2) 20 minutes flying time at normal cruising speed when operating within an area providing continuous and suitable precautionary landing sites.

CAT.OP.MPA.155 Carriage of special categories of passengers (SCPs)

- (a) Persons requiring special conditions, assistance and/or devices when carried on a flight shall be considered as SCPs including at least:
 - (1) persons with reduced mobility (PRMs) who are understood to be any person whose mobility is reduced due to any physical disability, sensory or locomotory, permanent or temporary, intellectual disability or impairment, any other cause of disability, or age;
 - (2) infants and unaccompanied children; and
 - (3) deportees, inadmissible passengers or prisoners in custody.
- (b) SCPs shall be carried under conditions that ensure the safety of the aircraft and its occupants according to procedures established by the operator.
- (c) SCPs shall not be allocated, nor occupy, seats that permit direct access to emergency exits or where their presence could:
 - (1) impede crew members in their duties;
 - (2) obstruct access to emergency equipment; or
 - (3) impede the emergency evacuation of the aircraft.
- (d) The commander shall be notified in advance when SCPs are to be carried on board.

CAT.OP.MPA.160 Stowage of baggage and cargo

The operator shall establish procedures to ensure that:

- (a) only hand baggage that can be adequately and securely stowed is taken into the passenger compartment; and
- (b) all baggage and cargo on board that might cause injury or damage, or obstruct aisles and exits if displaced, is stowed so as to prevent movement.

CAT.OP.MPA.165 Passenger seating

The operator shall establish procedures to ensure that passengers are seated where, in the event that an emergency evacuation is required, they are able to assist and not hinder evacuation of the aircraft.

CAT.OP.MPA.170 Passenger briefing

The operator shall ensure that passengers are:

- (a) given briefings and demonstrations relating to safety in a form that facilitates the application of the procedures applicable in the event of an emergency; and
- (b) provided with a safety briefing card on which picture-type instructions indicate the operation of emergency equipment and exits likely to be used by passengers.

CAT.OP.MPA.175 Flight preparation

- (a) An operational flight plan shall be completed for each intended flight based on considerations of aircraft performance, other operating limitations and relevant expected conditions on the route to be followed and at the aerodromes/ operating sites concerned.
- (b) The flight shall not be commenced unless the commander is satisfied that:
 - (1) all items stipulated in 2.a.3 of Appendix 1 to this Regulation concerning the airworthiness and registration of the aircraft, instrument and equipment, mass and centre of gravity (CG) location, baggage and cargo and aircraft operating limitations can be complied with;
 - (2) the aircraft is not operated contrary to the provisions of the configuration deviation list (CDL);
 - (3) the parts of the operations manual that are required for the conduct of the flight are available;
 - (4) the documents, additional information and forms required to be available by CAT.GEN.MPA.180 are on board;

- (5) current maps, charts and associated documentation or equivalent data are available to cover the intended operation of the aircraft including any diversion that may reasonably be expected;
 - (6) ground facilities and services required for the planned flight are available and adequate;
 - (7) the provisions specified in the operations manual in respect of fuel, oil, oxygen, minimum safe altitudes, aerodrome operating minima and availability of alternate aerodromes, where required, can be complied with for the planned flight; and
 - (8) any additional operational limitation can be complied with.
- (c) Notwithstanding (a), an operational flight plan is not required for operations under VFR of:
- (1) other-than-complex motor-powered aeroplane taking off and landing at the same aerodrome or operating site; or
 - (2) helicopters with an MCTOM of 3 175 kg or less, by day and over routes navigated by reference to visual landmarks in a local area as specified in the operations manual.

CAT.OP.MPA.180 Selection of aerodromes — aeroplanes

- (a) Where it is not possible to use the departure aerodrome as a take-off alternate aerodrome due to meteorological or performance reasons, the operator shall select another adequate take-off alternate aerodrome that is no further from the departure aerodrome than:
- (1) for two-engined aeroplanes:
 - (i) one hour flying time at an OEI cruising speed according to the AFM in still air standard conditions based on the actual take-off mass; or
 - (ii) the ETOPS diversion time approved in accordance with Annex V (Part-SPA), Subpart F, subject to any MEL restriction, up to a maximum of two hours, at the OEI cruising speed according to the AFM in still air standard conditions based on the actual take-off mass;
 - (2) for three and four-engined aeroplanes, two hours flying time at the OEI cruising speed according to the AFM in still air standard conditions based on the actual take-off mass.
- If the AFM does not contain an OEI cruising speed, the speed to be used for calculation shall be that which is achieved with the remaining engine(s) set at maximum continuous power.
- (b) The operator shall select at least one destination alternate aerodrome for each instrument flight rules (IFR) flight unless the destination aerodrome is an isolated aerodrome or:
- (1) the duration of the planned flight from take-off to landing or, in the event of in-flight replanning in accordance with CAT.OP.MPA.150(d), the remaining flying time to destination does not exceed six hours; and
 - (2) two separate runways are available and usable at the destination aerodrome and the appropriate weather reports and/or forecasts for the destination aerodrome indicate that, for the period from one hour before until one hour after the expected time of arrival at the destination aerodrome, the ceiling will be at least 2 000 ft or circling height + 500 ft, whichever is greater, and the ground visibility will be at least 5 km.
- (c) The operator shall select two destination alternate aerodromes when:
- (1) the appropriate weather reports and/or forecasts for the destination aerodrome indicate that during a period commencing one hour before and ending one hour after the estimated time of arrival, the weather conditions will be below the applicable planning minima; or
 - (2) no meteorological information is available.
- (d) The operator shall specify any required alternate aerodrome(s) in the operational flight plan.

CAT.OP.MPA.181 Selection of aerodromes and operating sites — helicopters

- (a) For flights under instrument meteorological conditions (IMC), the commander shall select a take-off alternate aerodrome within one hour flying time at normal cruising speed if it would not be possible to return to the site of departure due to meteorological reasons.
- (b) For IFR flights or when flying under VFR and navigating by means other than by reference to visual landmarks, the commander shall specify at least one destination alternate aerodrome in the operational flight plan unless:
- (1) the destination is a coastal aerodrome and the helicopter is routing from offshore;

- (2) for a flight to any other land destination, the duration of the flight and the meteorological conditions prevailing are such that, at the estimated time of arrival at the site of intended landing, an approach and landing is possible under visual meteorological conditions (VMC); or
 - (3) the site of intended landing is isolated and no alternate is available; in this case, a point of no return (PNR) shall be determined.
- (c) The operator shall select two destination alternate aerodromes when:
- (1) the appropriate weather reports and/or forecasts for the destination aerodrome indicate that during a period commencing one hour before and ending one hour after the estimated time of arrival, the weather conditions will be below the applicable planning minima; or
 - (2) no meteorological information is available for the destination aerodrome.
- (d) The operator may select off-shore destination alternate aerodromes when the following criteria are applied:
- (1) an off-shore destination alternate aerodrome shall be used only after a PNR. Prior to the PNR, on-shore alternate aerodromes shall be used;
 - (2) OEI landing capability shall be attainable at the alternate aerodrome;
 - (3) to the extent possible, deck availability shall be guaranteed. The dimensions, configuration and obstacle clearance of individual helidecks or other sites shall be assessed in order to establish operational suitability for use as an alternate aerodrome by each helicopter type proposed to be used;
 - (4) weather minima shall be established taking accuracy and reliability of meteorological information into account;
 - (5) the MEL shall contain specific provisions for this type of operation; and
 - (6) an off-shore alternate aerodrome shall only be selected if the operator has established a procedure in the operations manual.
- (e) The operator shall specify any required alternate aerodrome(s) in the operational flight plan.

CAT.OP.MPA.185 Planning minima for IFR flights — aeroplanes

(a) *Planning minima for a take-off alternate aerodrome*

The operator shall only select an aerodrome as a take-off alternate aerodrome when the appropriate weather reports and/or forecasts indicate that, during a period commencing one hour before and ending one hour after the estimated time of arrival at the aerodrome, the weather conditions will be at or above the applicable landing minima specified in accordance with CAT.OP.MPA.110. The ceiling shall be taken into account when the only approach operations available are non-precision approaches (NPA) and/or circling operations. Any limitation related to OEI operations shall be taken into account.

(b) *Planning minima for a destination aerodrome other than an isolated destination aerodrome*

The operator shall only select the destination aerodrome when:

- (1) the appropriate weather reports and/or forecasts indicate that, during a period commencing one hour before and ending one hour after the estimated time of arrival at the aerodrome, the weather conditions will be at or above the applicable planning minima as follows:
 - (i) RVR/visibility (VIS) specified in accordance with CAT.OP.MPA.110; and
 - (ii) for an NPA or a circling operation, the ceiling at or above MDH; or
- (2) two destination alternate aerodromes are selected.

(c) *Planning minima for a destination alternate aerodrome, isolated aerodrome, fuel en-route alternate (fuel ERA) aerodrome, en-route alternate (ERA) aerodrome*

The operator shall only select an aerodrome for one of these purposes when the appropriate weather reports and/or forecasts indicate that, during a period commencing one hour before and ending one hour after the estimated time of arrival at the aerodrome, the weather conditions will be at or above the planning minima in Table 1.

Table 1
Planning minima

Destination alternate aerodrome, isolated destination aerodrome, fuel ERA and ERA aerodrome	
Type of approach	Planning minima
CAT II and III	CAT I RVR
CATI	NPA RVR/VIS Ceiling shall be at or above MDH
NPA	NPA RVR/VIS + 1 000 m Ceiling shall be at or above MDH + 200 ft
Circling	Circling

CAT.OP.MPA.186 Planning minima for IFR flights — helicopters

(a) *Planning minima for take-off alternate aerodrome(s)*

The operator shall only select an aerodrome or landing site as a take-off alternate aerodrome when the appropriate weather reports and/or forecasts indicate that, during a period commencing one hour before and ending one hour after the estimated time of arrival at the take-off alternate aerodrome, the weather conditions will be at or above the applicable landing minima specified in accordance with CAT.OP.MPA.110. The ceiling shall be taken into account when the only approach operations available are NPA operations. Any limitation related to OEI operations shall be taken into account.

(b) *Planning minima for destination aerodrome and destination alternate aerodrome(s)*

The operator shall only select the destination and/or destination alternate aerodrome(s) when the appropriate weather reports and/or forecasts indicate that, during a period commencing one hour before and ending one hour after the estimated time of arrival at the aerodrome or operating site, the weather conditions will be at or above the applicable planning minima as follows:

- (1) except as provided in CAT.OP.MPA.181(d), planning minima for a destination aerodrome shall be:
 - (i) RVR/VIS specified in accordance with CAT.OP.MPA.110; and
 - (ii) for NPA operations, the ceiling at or above MDH;
- (2) planning minima for destination alternate aerodrome(s) are as shown in Table 1.

Table 1
Planning minima

Destination alternate aerodrome	
Type of approach	Planning minima
CAT II and III	CAT I RVR
CAT I	CAT I + 200 ft/400 m visibility
NPA	NPA RVR/VIS + 400 m Ceiling shall be at or above MDH + 200 ft

CAT.OP.MPA.190 Submission of the ATS flight plan

- (a) If an ATS flight plan is not submitted because it is not required by the rules of the air, adequate information shall be deposited in order to permit alerting services to be activated if required.
- (b) When operating from a site where it is impossible to submit an ATS flight plan, the ATS flight plan shall be transmitted as soon as possible after take-off by the commander or the operator.

CAT.OP.MPA.195 Refuelling/defuelling with passengers embarking, on board or disembarking

- (a) An aircraft shall not be refuelled/defuelled with Avgas (aviation gasoline) or wide-cut type fuel or a mixture of these types of fuel, when passengers are embarking, on board or disembarking.

- (b) For all other types of fuel, necessary precautions shall be taken and the aircraft shall be properly manned by qualified personnel ready to initiate and direct an evacuation of the aircraft by the most practical and expeditious means available.

CAT.OP.MPA.200 Refuelling/defuelling with wide-cut fuel

Refuelling/defuelling with wide-cut fuel shall only be conducted if the operator has established appropriate procedures taking into account the high risk of using wide-cut fuel types.

CAT.OP.MPA.205 Push back and towing — aeroplanes

Push back and towing procedures specified by the operator shall be conducted in accordance with established aviation standards and procedures.

CAT.OP.MPA.210 Crew members at stations

(a) *Flight crew members*

- (1) During take-off and landing each flight crew member required to be on duty in the flight crew compartment shall be at the assigned station.
- (2) During all other phases of flight each flight crew member required to be on duty in the flight crew compartment shall remain at the assigned station, unless absence is necessary for the performance of duties in connection with the operation or for physiological needs, provided at least one suitably qualified pilot remains at the controls of the aircraft at all times.
- (3) During all phases of flight each flight crew member required to be on duty in the flight crew compartment shall remain alert. If a lack of alertness is encountered, appropriate countermeasures shall be used. If unexpected fatigue is experienced, a controlled rest procedure, organised by the commander, may be used if workload permits. Controlled rest taken in this way shall not be considered to be part of a rest period for purposes of calculating flight time limitations nor used to justify any extension of the duty period.

(b) *Cabin crew members*

During critical phases of flight, each cabin crew member shall be seated at the assigned station and shall not perform any activities other than those required for the safe operation of the aircraft.

CAT.OP.MPA.215 Use of headset — aeroplanes

- (a) Each flight crew member required to be on duty in the flight crew compartment shall wear a headset with boom microphone or equivalent. The headset shall be used as the primary device for voice communications with ATS:
- (1) when on the ground:
 - (i) when receiving the ATC departure clearance via voice communication; and
 - (ii) when engines are running;
 - (2) when in flight:
 - (i) below transition altitude; or
 - (ii) 10 000 ft, whichever is higher; and
 - (3) whenever deemed necessary by the commander.
- (b) In the conditions of (a), the boom microphone or equivalent shall be in a position that permits its use for two-way radio communications.

CAT.OP.MPA.216 Use of headset — helicopters

Each flight crew member required to be on duty in the flight crew compartment shall wear a headset with boom microphone, or equivalent, and use it as the primary device to communicate with ATS.

CAT.OP.MPA.220 Assisting means for emergency evacuation

The operator shall establish procedures to ensure that before taxiing, take-off and landing and when safe and practicable to do so, all means of assistance for emergency evacuation that deploy automatically are armed.

CAT.OP.MPA.225 Seats, safety belts and restraint systems

- (a) *Crew members*
 - (1) During take-off and landing, and whenever decided by the commander in the interest of safety, each crew member shall be properly secured by all safety belts and restraint systems provided.
 - (2) During other phases of the flight, each flight crew member in the flight crew compartment shall keep the assigned station safety belt fastened while at his/her station.
- (b) *Passengers*
 - (1) Before take-off and landing, and during taxiing, and whenever deemed necessary in the interest of safety, the commander shall be satisfied that each passenger on board occupies a seat or berth with his/her safety belt or restraint system properly secured.
 - (2) The operator shall make provisions for multiple occupancy of aircraft seats that is only allowed on specified seats. The commander shall be satisfied that multiple occupancy does not occur other than by one adult and one infant who is properly secured by a supplementary loop belt or other restraint device.

CAT.OP.MPA.230 Securing of passenger compartment and galley(s)

- (a) The operator shall establish procedures to ensure that before taxiing, take-off and landing all exits and escape paths are unobstructed.
- (b) The commander shall ensure that before take-off and landing, and whenever deemed necessary in the interest of safety, all equipment and baggage are properly secured.

CAT.OP.MPA.235 Life-jackets — helicopters

The operator shall establish procedures to ensure that, when operating a helicopter over water in performance class 3, account is taken of the duration of the flight and conditions to be encountered when deciding if life-jackets are to be worn by all occupants.

CAT.OP.MPA.240 Smoking on board

The commander shall not allow smoking on board during any public transport operation and:

- (a) whenever considered necessary in the interest of safety;
- (b) during refuelling and defuelling of the aircraft;
- (c) while the aircraft is on the surface unless the operator has determined procedures to mitigate the risks during ground operations;
- (d) outside designated smoking areas, in the aisle(s) and lavatory(ies);
- (e) in cargo compartments and/or other areas where cargo is carried that is not stored in flame-resistant containers or covered by flame-resistant canvas; and
- (f) in those areas of the passenger compartment where oxygen is being supplied.

CAT.OP.MPA.245 Meteorological conditions — all aircraft

- (a) On IFR flights the commander shall only:
 - (1) commence take-off; or
 - (2) continue beyond the point from which a revised ATS flight plan applies in the event of in-flight replanning,when information is available indicating that the expected weather conditions, at the time of arrival, at the destination and/or required alternate aerodrome(s) are at or above the planning minima.

- (b) On IFR flights, the commander shall only continue towards the planned destination aerodrome when the latest information available indicates that, at the expected 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) On VFR flights, the commander shall only commence take-off when the appropriate weather reports and/or forecasts indicate that the meteorological conditions along the part of the route to be flown under VFR will, at the appropriate time, be at or above the VFR limits.

CAT.OP.MPA.246 Meteorological conditions — aeroplanes

In addition to CAT.OP.MPA.245, on IFR flights with aeroplanes, the commander shall only continue beyond:

- (a) the decision point when using the reduced contingency fuel (RCF) procedure; or
- (b) the pre-determined point when using the pre-determined point (PDP) procedure,

when information is available indicating that the expected weather conditions, at the time of arrival, at the destination and/or required alternate aerodrome(s) are at or above the applicable aerodrome operating minima.

CAT.OP.MPA.247 Meteorological conditions — helicopters

In addition to CAT.OP.MPA.245:

- (a) On VFR flights overwater out of sight of land with helicopters, the commander shall only commence take-off when the appropriate weather reports and/or forecasts indicate that the cloud ceiling will be above 600 ft by day or 1 200 ft by night.
- (b) Notwithstanding (a), when flying between helidecks located in class G airspace where the overwater sector is less than 10 NM, VFR flights may be conducted when the limits are at, or better than, the following:

Table 1

Minima for flying between helidecks located in class G airspace				
	Day		Night	
	Height (*)	Visibility	Height (*)	Visibility
Single-pilot	300 ft	3 km	500 ft	5 km
Two pilots	300 ft	2 km (**)	500 ft	5 km (***)
(*) The cloud base shall be such as to allow flight at the specified height, below and clear of cloud. (**) Helicopters may be operated in flight visibility down to 800 m provided the destination or an intermediate structure is continuously visible. (***) Helicopters may be operated in flight visibility down to 1 500 m provided the destination or an intermediate structure is continuously visible.				

- (c) Flight with helicopters to a helideck or elevated FATO shall only be operated when the mean wind speed at the helideck or elevated FATO is reported to be less than 60 kt.

CAT.OP.MPA.250 Ice and other contaminants — ground procedures

- (a) The operator shall establish procedures to be followed when ground de-icing and anti-icing and related inspections of the aircraft are necessary to allow the safe operation of the aircraft.
- (b) The commander 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 under (a) and in accordance with the AFM.

CAT.OP.MPA.255 Ice and other contaminants — flight procedures

- (a) The operator shall establish procedures for flights in expected or actual icing conditions.
- (b) The commander 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.

- (c) 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 commander shall exit the icing conditions without delay, by a change of level and/or route, if necessary by declaring an emergency to ATC.

CAT.OP.MPA.260 Fuel and oil supply

The commander shall only commence a flight or continue in the event of in-flight replanning when satisfied that the aircraft carries at least the planned amount of usable fuel and oil to complete the flight safely, taking into account the expected operating conditions.

CAT.OP.MPA.265 Take-off conditions

Before commencing take-off, the commander shall be satisfied that:

- (a) according to the information available to him/her, 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) established aerodrome operating minima will be complied with.

CAT.OP.MPA.270 Minimum flight altitudes

The commander or the pilot to whom conduct of the flight has been delegated shall not fly below specified minimum altitudes except when:

- (a) necessary for take-off or landing; or
- (b) descending in accordance with procedures approved by MCAA.

CAT.OP.MPA.275 Simulated abnormal situations in flight

The operator shall ensure that when carrying passengers or cargo the following are not simulated:

- (a) abnormal or emergency situations that require the application of abnormal or emergency procedures; or
- (b) flight in IMC by artificial means.

CAT.OP.MPA.280 In-flight fuel management — aeroplanes

The operator shall establish a procedure to ensure that in-flight fuel checks and fuel management are carried out according to the following criteria.

- (a) *In-flight fuel checks*
- (1) The commander shall ensure that fuel checks are carried out in-flight at regular intervals. The usable remaining fuel shall be recorded and evaluated to:
- (i) compare actual consumption with planned consumption;
 - (ii) check that the usable remaining fuel is sufficient to complete the flight, in accordance with (b); and
 - (iii) determine the expected usable fuel remaining on arrival at the destination aerodrome.
- (2) The relevant fuel data shall be recorded.
- (b) *In-flight fuel management*
- (1) The flight shall be conducted so that the expected usable fuel remaining on arrival at the destination aerodrome is not less than:
- (i) the required alternate fuel plus final reserve fuel; or
 - (ii) the final reserve fuel if no alternate aerodrome is required.

- (2) If an in-flight fuel check shows that the expected usable fuel remaining on arrival at the destination aerodrome is less than:
 - (i) the required alternate fuel plus final reserve fuel, the commander shall take into account the traffic and the operational conditions prevailing at the destination aerodrome, at the destination alternate aerodrome and at any other adequate aerodrome in deciding whether to proceed to the destination aerodrome or to divert so as to perform a safe landing with not less than final reserve fuel; or
 - (ii) the final reserve fuel if no alternate aerodrome is required, the commander shall take appropriate action and proceed to an adequate aerodrome so as to perform a safe landing with not less than final reserve fuel.
- (3) The commander shall declare an emergency when the calculated usable fuel on landing, at the nearest adequate aerodrome where a safe landing can be performed, is less than final reserve fuel. The declaration shall be by broadcasting MAYDAY MAYDAY MAYDAY FUEL.
- (4) Additional conditions for specific procedures
 - (i) On a flight using the RCF procedure, to proceed to the destination 1 aerodrome, the commander shall ensure that the usable fuel remaining at the decision point is at least the total of:
 - (A) trip fuel from the decision point to the destination 1 aerodrome;
 - (B) contingency fuel equal to 5 % of trip fuel from the decision point to the destination 1 aerodrome;
 - (C) destination 1 aerodrome alternate fuel, if a destination 1 alternate aerodrome is required; and
 - (D) final reserve fuel.
 - (ii) On a flight using the PDP procedure to proceed to the destination aerodrome, the commander shall ensure that the usable fuel remaining at the PDP is at least the total of:
 - (A) trip fuel from the PDP to the destination aerodrome;
 - (B) contingency fuel from the PDP to the destination aerodrome; and
 - (C) additional fuel.

CAT.OP.MPA.281 In-flight fuel management — helicopters

- (a) The operator shall establish a procedure to ensure that in-flight fuel checks and fuel management are carried out.
- (b) The commander shall ensure that the amount of usable fuel remaining in flight is not less than the fuel required to proceed to an aerodrome or operating site where a safe landing can be made, with final reserve fuel remaining.
- (c) The commander shall declare an emergency when the actual usable fuel on board is less than final reserve fuel.

CAT.OP.MPA.285 Use of supplemental oxygen

The commander shall ensure that flight crew members 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.

CAT.OP.MPA.290 Ground proximity detection

When undue proximity to the ground is detected by a flight crew member or by a ground proximity warning system, the pilot flying shall take corrective action immediately to establish safe flight conditions.

CAT.OP.MPA.295 Use of airborne collision avoidance system (ACAS)

The operator shall establish operational procedures and training programmes when ACAS is installed and serviceable. When ACAS II is used, such procedures and training shall be in accordance with Regulations.

CAT.OP.MPA.300 Approach and landing conditions

Before commencing an approach to land, the commander shall be satisfied that, according to the information available to him/her, the weather at the aerodrome and the condition of the runway or FATO intended to be used should not prevent a safe approach, landing or missed approach, having regard to the performance information contained in the operations manual.

CAT.OP.MPA.305 Commencement and continuation of approach

- (a) The commander or the pilot to whom conduct of the flight has been delegated may commence an instrument approach regardless of the reported 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 DA/H or 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. If reported and relevant, the midpoint and stopend RVR shall also be controlling. The minimum RVR value for the midpoint shall be 125 m or the RVR required for the touchdown zone if less, and 75 m for the stopend. For aircraft equipped with a rollout guidance or control system, the minimum RVR value for the midpoint shall be 75 m.

CAT.OP.MPA.310 Operating procedures — threshold crossing height — aeroplanes

The operator shall establish operational procedures designed to ensure that an aeroplane conducting precision approaches crosses the threshold of the runway by a safe margin, with the aeroplane in the landing configuration and attitude.

CAT.OP.MPA.315 Flight hours reporting — helicopters

The operator shall make available to MCAA the hours flown for each helicopter operated during the previous calendar year.

CAT.OP.MPA.320 Aircraft categories

- (a) Aircraft categories shall be based on the indicated airspeed at threshold (V AT) which is equal to the stalling speed (V SO) multiplied by 1,3 or one-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 shall be used.
- (b) The aircraft categories specified in the table below shall be used.

Table 1

Aircraft categories corresponding to V AT values	
Aircraft category	VAT
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

- (c) The landing configuration that is to be taken into consideration shall be specified in the operations manual.
- (d) The operator may apply a lower landing mass for determining the V AT if approved by MCAA. Such a lower landing mass shall be a permanent value, independent of the changing conditions of day-to-day operations.

SECTION 2
Non motor-powered aircraft

CAT.OP.NMPA.100 Use of aerodromes and operating sites

The operator shall only use aerodromes and operating sites that are adequate for the type(s) of aircraft and operation(s) concerned.

CAT.OP.NMPA.105 Noise abatement procedures — balloons and powered sailplanes

The commander shall take into account the effect of aircraft noise while ensuring that safety has priority over noise abatement.

CAT.OP.NMPA.110 Fuel or ballast supply and planning — balloons

- (a) The operator shall ensure that the fuel or ballast carried is sufficient for the intended flight duration plus a reserve of 30 minutes of flight.
- (b) Fuel 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(s) procedures and restrictions.
- (c) The calculations shall be documented in an operational flight plan.

CAT.OP.NMPA.115 Carriage of special categories of passengers (SCPs)

Persons requiring special conditions, assistance and/or devices when carried on a flight shall be considered as SCPs and be carried under conditions that ensure the safety of the aircraft and its occupants according to procedures established by the operator.

CAT.OP.NMPA.120 Passenger briefing

The operator shall ensure that passengers are given a safety briefing before or, where appropriate, during the flight.

CAT.OP.NMPA.125 Flight preparation

Before commencing the flight, the commander shall:

- (a) ascertain by every reasonable means available that the ground facilities including communication facilities and navigation aids available and directly required on such a flight, for the safe operation of the aircraft, are adequate for the type of operation under which the flight is to be conducted; and
- (b) 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 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.

CAT.OP.NMPA.130 Submission of the ATS flight plan

- (a) If an ATS flight plan is not submitted because it is not required by the rules of the air, adequate information shall be deposited in order to permit alerting services to be activated if required.
- (b) When operating from a site where it is impossible to submit an ATS flight plan, the ATS flight plan shall be transmitted as soon as possible after take-off by the commander or the operator.

CAT.OP.NMPA.135 Securing of passenger and pilot compartments — balloons

The commander shall ensure that before take-off and landing, and whenever deemed necessary in the interest of safety:

- (a) all equipment and baggage are properly secured; and
- (b) emergency evacuation remains possible.

CAT.OP.NMPA.140 Smoking on board

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

CAT.OP.NMPA.145 Meteorological conditions

The commander 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.

CAT.OP.NMPA.150 Ice and other contaminants — ground procedures

The commander 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 accordance with the AFM.

CAT.OP.NMPA.155 Take-off conditions

Before commencing take-off, the commander shall be satisfied that according to the information available to him/her, the weather at the aerodrome or operating site would not prevent a safe take-off and departure.

CAT.OP.NMPA.160 Simulated abnormal situations in flight

The commander shall ensure that when carrying passengers abnormal or emergency situations that require the application of abnormal or emergency procedures are not simulated.

CAT.OP.NMPA.165 In-flight fuel and ballast management — balloons

The commander shall check at regular intervals that the amount of usable fuel and ballast remaining in flight is not less than the fuel and ballast needed to complete the intended flight and the reserve planned for landing.

CAT.OP.NMPA.170 Use of supplemental oxygen

The commander shall ensure that flight crew members engaged in performing duties essential to the safe operation of the aircraft in flight use supplemental oxygen continuously whenever the pressure altitude exceeds 10 000 ft for a period of more than 30 minutes and whenever the pressure altitude exceeds 13 000 ft.

CAT.OP.NMPA.175 Approach and landing conditions

Before commencing an approach to land, the commander shall be satisfied that, according to the information available to him/her, the weather at the intended aerodrome or operating site and the condition of the surface intended to be used would not prevent a safe approach and landing.

CAT.OP.NMPA.180 Operational limitations — hot-air balloons

- (a) A hot-air balloon shall not land during night, except in emergency situation.
- (b) A hot-air balloon may take-off during night, provided sufficient fuel is carried for a landing during day.

CAT.OP.NMPA.185 Operational limitations — sailplanes

A sailplane shall only be operated during day.

SUBPART C
AIRCRAFT PERFORMANCE AND OPERATING LIMITATIONS

SECTION 1
Aeroplanes

CHAPTER 1
General requirements

CAT.POL.A.100 Performance classes

- (a) The aeroplane shall be operated in accordance with the applicable performance class requirements.
- (b) Where full compliance with the applicable requirements of this Section cannot be shown due to specific design characteristics, the operator shall apply approved performance standards that ensure a level of safety equivalent to that of the appropriate chapter.

CAT.POL.A.105 General

- (a) The mass of the aeroplane:
 - (1) at the start of the take-off; or
 - (2) in the event of in-flight replanning, at the point from which the revised operational flight plan applies, shall not be greater than the mass at which the requirements of the appropriate chapter can be complied with for the flight to be undertaken. Allowance may be made for expected reductions in mass as the flight proceeds and for fuel jettisoning.
- (b) The approved performance data contained in the AFM shall be used to determine compliance with the requirements of the appropriate chapter, supplemented as necessary with other data as prescribed in the relevant chapter. The operator shall specify other data in the operations manual. When applying the factors prescribed in the appropriate chapter, account may be taken of any operational factors already incorporated in the AFM performance data to avoid double application of factors.
- (c) Due account shall be taken of aeroplane configuration, environmental conditions and the operation of systems that have an adverse effect on performance.
- (d) For performance purposes, a damp runway, other than a grass runway, may be considered to be dry.
- (e) The operator shall take account of charting accuracy when assessing the take-off requirements of the applicable chapters.

CHAPTER 2
Performance class A

CAT.POL.A.200 General

- (a) The approved performance data in the AFM shall be supplemented as necessary with other data if the approved performance data in the AFM is insufficient in respect of items such as:
 - (1) accounting for reasonably expected adverse operating conditions such as take-off and landing on contaminated runways; and
 - (2) consideration of engine failure in all flight phases.
- (b) For wet and contaminated runways, performance data determined in accordance with applicable standards on certification of large aeroplanes or equivalent shall be used.
- (c) The use of other data referred to in (a) and equivalent requirements referred to in (b) shall be specified in the operations manual.

CAT.POL.A.205 Take-off

- (a) The take-off mass shall not exceed the maximum take-off mass specified in the AFM for the pressure altitude and the ambient temperature at the aerodrome of departure.
- (b) The following requirements shall be met when determining the maximum permitted take-off mass:
 - (1) the accelerate-stop distance shall not exceed the accelerate-stop distance available (ASDA);
 - (2) the take-off distance shall not exceed the take-off distance available, with a clearway distance not exceeding half of the take-off run available (TORA);
 - (3) the take-off run shall not exceed the TORA;
 - (4) a single value of V_1 shall be used for the rejected and continued take-off; and
 - (5) on a wet or contaminated runway, the take-off mass shall not exceed that permitted for a take-off on a dry runway under the same conditions.
- (c) When showing compliance with (b), the following shall be taken into account:
 - (1) the pressure altitude at the aerodrome;
 - (2) the ambient temperature at the aerodrome;
 - (3) the runway surface condition and the type of runway surface;
 - (4) the runway slope in the direction of take-off;
 - (5) not more than 50 % of the reported headwind component or not less than 150 % of the reported tailwind component; and
 - (6) the loss, if any, of runway length due to alignment of the aeroplane prior to take-off.

CAT.POL.A.210 Take-off obstacle clearance

- (a) The net take-off flight path shall be determined in such a way that the aeroplane clears all obstacles by a vertical distance of at least 35 ft or by a horizontal distance of at least 90 m plus $0,125 \times D$, where D is the horizontal distance the aeroplane has travelled from the end of the take-off distance available (TODA) or the end of the take-off distance if a turn is scheduled before the end of the TODA. For aeroplanes with a wingspan of less than 60 m, a horizontal obstacle clearance of half the aeroplane wingspan plus 60 m, plus $0,125 \times D$ may be used.
- (b) When showing compliance with (a):
 - (1) The following items shall be taken into account:
 - (i) the mass of the aeroplane at the commencement of the take-off run;
 - (ii) the pressure altitude at the aerodrome;
 - (iii) the ambient temperature at the aerodrome; and
 - (iv) not more than 50 % of the reported headwind component or not less than 150 % of the reported tailwind component.
 - (2) Track changes shall not be allowed up to the point at which the net take-off flight path has achieved a height equal to one half the wingspan but not less than 50 ft above the elevation of the end of the TORA. Thereafter, up to a height of 400 ft it is assumed that the aeroplane is banked by no more than 15° . Above 400 ft height bank angles greater than 15° , but not more than 25° may be scheduled.
 - (3) Any part of the net take-off flight path in which the aeroplane is banked by more than 15° shall clear all obstacles within the horizontal distances specified in (a), (b)(6) and (b)(7) by a vertical distance of at least 50 ft.
 - (4) Operations that apply increased bank angles of not more than 20° between 200 ft and 400 ft, or not more than 30° above 400 ft, shall be carried out in accordance with CAT.POL.A.240.
 - (5) Adequate allowance shall be made for the effect of bank angle on operating speeds and flight path including the distance increments resulting from increased operating speeds.
 - (6) For cases where the intended flight path does not require track changes of more than 15° , the operator does not need to consider those obstacles that have a lateral distance greater than:
 - (i) 300 m, if the pilot is able to maintain the required navigational accuracy through the obstacle accountability area; or
 - (ii) 600 m, for flights under all other conditions.
 - (7) For cases where the intended flight path requires track changes of more than 15° , the operator does not need to consider those obstacles that have a lateral distance greater than:
 - (i) 600 m, if the pilot is able to maintain the required navigational accuracy through the obstacle accountability area; or
 - (ii) 900 m, for flights under all other conditions.

- (c) The operator shall establish contingency procedures to satisfy the requirements in (a) and (b) and to provide a safe route, avoiding obstacles, to enable the aeroplane to either comply with the en-route requirements of CAT.POL.A.215, or land at either the aerodrome of departure or at a take-off alternate aerodrome.

CAT.POL.A.215 En-route — one-engine-inoperative (OEI)

- (a) The OEI en-route net flight path data shown in the AFM, appropriate to the meteorological conditions expected for the flight, shall allow demonstration of compliance with (b) or (c) at all points along the route. The net flight path shall have a positive gradient at 1 500 ft above the aerodrome where the landing is assumed to be made after engine failure. In meteorological conditions requiring the operation of ice protection systems, the effect of their use on the net flight path shall be taken into account.
- (b) The gradient of the net flight path shall be positive at least 1 000 ft above all terrain and obstructions along the route within 9.3 km (5 NM) on either side of the intended track.
- (c) The net flight path shall permit the aeroplane to continue flight from the cruising altitude to an aerodrome where a landing can be made in accordance with CAT.POL.A.225 or CAT.POL.A.230, as appropriate. The net flight path shall clear vertically, by at least 2 000 ft, all terrain and obstructions along the route within 9.3 km (5 NM) on either side of the intended track in accordance with the following:
- (1) the engine is assumed to fail at the most critical point along the route;
 - (2) account is taken of the effects of winds on the flight path;
 - (3) fuel jettisoning is permitted to an extent consistent with reaching the aerodrome with the required fuel reserves, if a safe procedure is used; and
 - (4) the aerodrome where the aeroplane is assumed to land after engine failure shall meet the following criteria:
 - (i) the performance requirements at the expected landing mass are met; and
 - (ii) weather reports and/or forecasts and field condition reports indicate that a safe landing can be accomplished at the estimated time of landing.
- (d) The operator shall increase the width margins of (b) and (c) to 18, 5 km (10 NM) if the navigational accuracy does not meet at least required navigation performance 5 (RNP5).

CAT.POL.A.220 En-route — aeroplanes with three or more engines, two engines inoperative

- (a) At no point along the intended track shall an aeroplane having three or more engines be more than 90 minutes, at the all-engines long range cruising speed at standard temperature in still air, away from an aerodrome at which the performance requirements applicable at the expected landing mass are met, unless it complies with (b) to (f).
- (b) The two-engines-inoperative en-route net flight path data shall allow the aeroplane to continue the flight, in the expected meteorological conditions, from the point where two engines are assumed to fail simultaneously to an aerodrome at which it is possible to land and come to a complete stop when using the prescribed procedure for a landing with two engines inoperative. The net flight path shall clear vertically, by at least 2 000 ft, all terrain and obstructions along the route within 9,3 km (5 NM) on either side of the intended track. At altitudes and in meteorological conditions requiring ice protection systems to be operable, the effect of their use on the net flight path data shall be taken into account. If the navigational accuracy does not meet at least RNP5, the operator shall increase the width margin given above to 18,5 km (10 NM).
- (c) The two engines shall be assumed to fail at the most critical point of that portion of the route where the aeroplane is more than 90 minutes, at the all-engines long range cruising speed at standard temperature in still air, away from an aerodrome at which the performance requirements applicable at the expected landing mass are met.
- (d) The net flight path shall have a positive gradient at 1 500 ft above the aerodrome where the landing is assumed to be made after the failure of two engines.
- (e) Fuel jettisoning shall be permitted to an extent consistent with reaching the aerodrome with the required fuel reserves, if a safe procedure is used.

- (f) The expected mass of the aeroplane at the point where the two engines are assumed to fail shall not be less than that which would include sufficient fuel to proceed to an aerodrome where the landing is assumed to be made, and to arrive there at least 1 500 ft directly over the landing area and thereafter to fly level for 15 minutes.

CAT.POL.A.225 Landing — destination and alternate aerodromes

- (a) The landing mass of the aeroplane determined in accordance with CAT.POL.A.105 (a) shall not exceed the maximum landing mass specified for the altitude and the ambient temperature expected for the estimated time of landing at the destination aerodrome and alternate aerodrome.

CAT.POL.A.230 Landing — dry runways

- (a) The landing mass of the aeroplane determined in accordance with CAT.POL.A.105 (a) for the estimated time of landing at the destination aerodrome and at any alternate aerodrome shall allow a full stop landing from 50 ft above the threshold:
- (1) for turbo-jet powered aeroplanes, within 60 % of the landing distance available (LDA); and
 - (2) for turbo-propeller powered aeroplanes, within 70 % of the LDA.
- (b) For steep approach operations, the operator shall use the landing distance data factored in accordance with (a), based on a screen height of less than 60 ft, but not less than 35 ft, and shall comply with CAT.POL.A.245.
- (c) For short landing operations, the operator shall use the landing distance data factored in accordance with (a) and shall comply with CAT.POL.A.250.
- (d) When determining the landing mass, the operator shall take the following into account:
- (1) the altitude at the aerodrome;
 - (2) not more than 50 % of the headwind component or not less than 150 % of the tailwind component; and
 - (3) the runway slope in the direction of landing if greater than ± 2 %.
- (e) For dispatching the aeroplane it shall be assumed that:
- (1) the aeroplane will land on the most favourable runway, in still air; and
 - (2) the aeroplane will land on the runway most likely to be assigned, considering the probable wind speed and direction, the ground handling characteristics of the aeroplane and other conditions such as landing aids and terrain.
- (f) If the operator is unable to comply with (e)(1) for a destination aerodrome having a single runway where a landing depends upon a specified wind component, the aeroplane may be dispatched if two alternate aerodromes are designated that permit full compliance with (a) to (e). Before commencing an approach to land at the destination aerodrome, the commander shall check that a landing can be made in full compliance with (a) to (d) and CAT.POL.A.225.
- (g) If the operator is unable to comply with (e)(2) for the destination aerodrome, the aeroplane shall be only dispatched if an alternate aerodrome is designated that allows full compliance with (a) to (e).

CAT.POL.A.235 Landing — wet and contaminated runways

- (a) When the appropriate weather reports and/or forecasts indicate that the runway at the estimated time of arrival may be wet, the LDA shall be at least 115 % of the required landing distance, determined in accordance with CAT.POL.A.230.
- (b) When the appropriate weather reports and/or forecasts indicate that the runway at the estimated time of arrival may be contaminated, the LDA shall be at least the landing distance determined in accordance with (a), or at least 115 % of the landing distance determined in accordance with approved contaminated landing distance data or equivalent, whichever is greater. The operator shall specify in the operations manual if equivalent landing distance data are to be applied.
- (c) A landing distance on a wet runway shorter than that required by (a), but not less than that required by CAT.POL.A.230(a), may be used if the AFM includes specific additional information about landing distances on wet runways.

- (d) A landing distance on a specially prepared contaminated runway shorter than that required by (b), but not less than that required by CAT.POL.A.230(a), may be used if the AFM includes specific additional information about landing distances on contaminated runways.
- (e) For (b), (c) and (d), the criteria of CAT.POL.A.230 shall be applied accordingly, except that CAT.POL.A.230 (a) shall not be applied to (b) above.

CAT.POL.A.240 Approval of operations with increased bank angles

- (a) Operations with increased bank angles require prior approval by MCAA.
- (b) To obtain the approval, the operator shall provide evidence that the following conditions are met:
 - (1) the AFM contains approved data for the required increase of operating speed and data to allow the construction of the flight path considering the increased bank angles and speeds;
 - (2) visual guidance is available for navigation accuracy;
 - (3) weather minima and wind limitations are specified for each runway; and
 - (4) the flight crew has obtained adequate knowledge of the route to be flown and of the procedures to be used in accordance with ORO.OPS.FC.

CAT.POL.A.245 Approval of steep approach operations

- (a) Steep approach operations using glideslope angles of 4, 5° or more and with screen heights of less than 60 ft, but not less than 35 ft, require prior approval by MCAA.
- (b) To obtain the approval, the operator shall provide evidence that the following conditions are met:
 - (1) the AFM states the maximum approved glideslope angle, any other limitations, normal, abnormal or emergency procedures for the steep approach as well as amendments to the field length data when using steep approach criteria;
 - (2) for each aerodrome at which steep approach operations are to be conducted:
 - (i) a suitable glide path reference system comprising at least a visual glide path indicating system shall be available;
 - (ii) weather minima shall be specified; and
 - (iii) the following items shall be taken into consideration:
 - (A) the obstacle situation;
 - (B) the type of glide path reference and runway guidance;
 - (C) the minimum visual reference to be required at decision height (DH) and MDA;
 - (D) available airborne equipment;
 - (E) pilot qualification and special aerodrome familiarisation;
 - (F) AFM limitations and procedures; and
 - (G) missed approach criteria.

CAT.POL.A.250 Approval of short landing operations

- (a) Short landing operations require prior approval by MCAA.
- (b) To obtain the approval, the operator shall provide evidence that the following conditions are met:
 - (1) the distance used for the calculation of the permitted landing mass may consist of the usable length of the declared safe area plus the declared LDA;
 - (2) the State of the aerodrome has determined a public interest and operational necessity for the operation, either due to the remoteness of the aerodrome or to physical limitations relating to extending the runway;
 - (3) the vertical distance between the path of the pilot's eye and the path of the lowest part of the wheels, with the aeroplane established on the normal glide path, does not exceed 3 m;
 - (4) RVR/VIS minimum shall not be less than 1 500 m and wind limitations are specified in the operations manual;
 - (5) minimum pilot experience, training and special aerodrome familiarisation requirements are specified and met;
 - (6) the crossing height over the beginning of the usable length of the declared safe area is 50 ft;
 - (7) the use of the declared safe area is approved by the State of the aerodrome;
 - (8) the usable length of the declared safe area does not exceed 90 m;

- (9) the width of the declared safe area is not less than twice the runway width or twice the wing span, whichever is greater, centred on the extended runway centre line;
- (10) the declared safe area is clear of obstructions or depressions that would endanger an aeroplane undershooting the runway and no mobile object is permitted on the declared safe area while the runway is being used for short landing operations;
- (11) the slope of the declared safe area does not exceed 5 % upward nor 2 % downward in the direction of landing; and
- (12) additional conditions, if specified by MCAA, taking into account aeroplane type characteristics, orographic characteristics in the approach area, available approach aids and missed approach/balked landing considerations.

CHAPTER 3 **Performance class B**

CAT.POL.A.300 General

- (a) The operator shall not operate a single-engined aeroplane:
 - (1) at night; or
 - (2) in IMC except under special VFR.
- (b) The operator shall treat two-engined aeroplanes that do not meet the climb requirements of CAT.POL.A.340 as single-engined aeroplanes.

CAT.POL.A.305 Take-off

- (a) The take-off mass shall not exceed the maximum take-off mass specified in the AFM for the pressure altitude and the ambient temperature at the aerodrome of departure.
- (b) The unfactored take-off distance, specified in the AFM, shall not exceed:
 - (1) when multiplied by a factor of 1,25, the take-off run available (TORA); or
 - (2) when stop way and/or clearway is available, the following:
 - (i) the TORA;
 - (ii) when multiplied by a factor of 1,15, the take-off distance available (TODA); or
 - (iii) when multiplied by a factor of 1,3, the ASDA.
- (c) When showing compliance with (b), the following shall be taken into account:
 - (1) the mass of the aeroplane at the commencement of the take-off run;
 - (2) the pressure altitude at the aerodrome;
 - (3) the ambient temperature at the aerodrome;
 - (4) the runway surface condition and the type of runway surface;
 - (5) the runway slope in the direction of take-off; and
 - (6) not more than 50 % of the reported headwind component or not less than 150 % of the reported tailwind component.

CAT.POL.A.310 Take-off obstacle clearance — multi-engined aeroplanes

- (a) The take-off flight path of aeroplanes with two or more engines shall be determined in such a way that the aeroplane clears all obstacles by a vertical distance of at least 50 ft, or by a horizontal distance of at least 90 m plus $0,125 \times D$, where D is the horizontal distance travelled by the aeroplane from the end of the TODA or the end of the take-off distance if a turn is scheduled before the end of the TODA, except as provided in (b) and (c). For aeroplanes with a wingspan of less than 60 m, a horizontal obstacle clearance of half the aeroplane wingspan plus 60 m plus $0,125 \times D$ may be used. It shall be assumed that:
 - (1) the take-off flight path begins at a height of 50 ft above the surface at the end of the take-off distance required by CAT.POL.A.305(b) and ends at a height of 1 500 ft above the surface;
 - (2) the aeroplane is not banked before the aeroplane has reached a height of 50 ft above the surface, and thereafter the angle of bank does not exceed 15°;
 - (3) failure of the critical engine occurs at the point on the all engine take-off flight path where visual reference for the purpose of avoiding obstacles is expected to be lost;

- (4) the gradient of the take-off flight path from 50 ft to the assumed engine failure height is equal to the average all-engines gradient during climb and transition to the en-route configuration, multiplied by a factor of 0,77; and
 - (5) the gradient of the take-off flight path from the height reached in accordance with (a)(4) to the end of the take-off flight path is equal to the OEI en-route climb gradient shown in the AFM.
- (b) For cases where the intended flight path does not require track changes of more than 15°, the operator does not need to consider those obstacles that have a lateral distance greater than:
- (1) 300 m, if the flight is conducted under conditions allowing visual course guidance navigation, or if navigational aids are available enabling the pilot to maintain the intended flight path with the same accuracy; or
 - (2) 600 m, for flights under all other conditions.
- (c) For cases where the intended flight path requires track changes of more than 15°, the operator does not need to consider those obstacles that have a lateral distance greater than:
- (1) 600 m, for flights under conditions allowing visual course guidance navigation; or
 - (2) 900 m, for flights under all other conditions.
- (d) When showing compliance with (a) to (c), the following shall be taken into account:
- (1) the mass of the aeroplane at the commencement of the take-off run;
 - (2) the pressure altitude at the aerodrome;
 - (3) the ambient temperature at the aerodrome; and
 - (4) not more than 50 % of the reported headwind component or not less than 150 % of the reported tailwind component.

CAT.POL.A.315 En-route — multi-engined aeroplanes

- (a) The aeroplane, in the meteorological conditions expected for the flight and in the event of the failure of one engine, with the remaining engines operating within the maximum continuous power conditions specified, shall be capable of continuing flight at or above the relevant minimum altitudes for safe flight stated in the operations manual to a point of 1 000 ft above an aerodrome at which the performance requirements can be met.
- (b) It shall be assumed that, at the point of engine failure:
- (1) the aeroplane is not flying at an altitude exceeding that at which the rate of climb equals 300 ft per minute with all engines operating within the maximum continuous power conditions specified; and
 - (2) the en-route gradient with OEI shall be the gross gradient of descent or climb, as appropriate, respectively increased by a gradient of 0,5 %, or decreased by a gradient of 0,5 %.

CAT.POL.A.320 En-route — single-engined aeroplanes

- (a) In the meteorological conditions expected for the flight, and in the event of engine failure, the aeroplane shall be capable of reaching a place at which a safe forced landing can be made.
- (b) It shall be assumed that, at the point of engine failure:
- (1) the aeroplane is not flying at an altitude exceeding that at which the rate of climb equals 300 ft per minute, with the engine operating within the maximum continuous power conditions specified; and
 - (2) the en-route gradient is the gross gradient of descent increased by a gradient of 0,5 %.

CAT.POL.A.325 Landing — destination and alternate aerodromes

The landing mass of the aeroplane determined in accordance with CAT.POL.A.105 (a) shall not exceed the maximum landing mass specified for the altitude and the ambient temperature expected at the estimated time of landing at the destination aerodrome and alternate aerodrome.

CAT.POL.A.330 Landing — dry runways

- (a) The landing mass of the aeroplane determined in accordance with CAT.POL.A.105 (a) for the estimated time of landing at the destination aerodrome and at any alternate aerodrome shall allow a full stop landing from 50 ft above the threshold within 70 % of the LDA taking into account:

- (1) the altitude at the aerodrome;
 - (2) not more than 50 % of the headwind component or not less than 150 % of the tailwind component;
 - (3) the runway surface condition and the type of runway surface; and
 - (4) the runway slope in the direction of landing.
- (b) For steep approach operations, the operator shall use landing distance data factored in accordance with (a) based on a screen height of less than 60 ft, but not less than 35 ft, and comply with CAT.POL.A.345.
- (c) For short landing operations, the operator shall use landing distance data factored in accordance with (a) and comply with CAT.POL.A.350.
- (d) For dispatching the aeroplane in accordance with (a) to (c), it shall be assumed that:
- (1) the aeroplane will land on the most favourable runway, in still air; and
 - (2) the aeroplane will land on the runway most likely to be assigned considering the probable wind speed and direction, the ground handling characteristics of the aeroplane and other conditions such as landing aids and terrain.
- (e) If the operator is unable to comply with (d) (2) for the destination aerodrome, the aeroplane shall only be dispatched if an alternate aerodrome is designated that permits full compliance with (a) to (d).

CAT.POL.A.335 Landing — wet and contaminated runways

- (a) When the appropriate weather reports and/or forecasts indicate that the runway at the estimated time of arrival may be wet, the LDA shall be equal to or exceed the required landing distance, determined in accordance with CAT.POL.A.330, multiplied by a factor of 1,15.
- (b) When the appropriate weather reports and/or forecasts indicate that the runway at the estimated time of arrival may be contaminated, the landing distance shall not exceed the LDA. The operator shall specify in the operations manual the landing distance data to be applied.
- (c) A landing distance on a wet runway shorter than that required by (a), but not less than that required by CAT.POL.A.330(a), may be used if the AFM includes specific additional information about landing distances on wet runways.

CAT.POL.A.340 Take-off and landing climb requirements

The operator of a two-engine aeroplane shall fulfil the following take-off and landing climb requirements.

- (a) *Take-off climb*
- (1) All engines operating
 - (i) The steady gradient of climb after take-off shall be at least 4 % with:
 - (A) take-off power on each engine;
 - (B) the landing gear extended, except that if the landing gear can be retracted in not more than seven seconds, it may be assumed to be retracted;
 - (C) the wing flaps in the take-off position(s); and
 - (D) a climb speed not less than the greater of 1,1 V_{MC} (minimum control speed on or near ground) and 1,2 V_{S1} (stall speed or minimum steady flight speed in the landing configuration).
 - (2) OEI
 - (i) The steady gradient of climb at an altitude of 400 ft above the take-off surface shall be measurably positive with:
 - (A) the critical engine inoperative and its propeller in the minimum drag position;
 - (B) the remaining engine at take-off power;
 - (C) the landing gear retracted;
 - (D) the wing flaps in the take-off position(s); and
 - (E) a climb speed equal to that achieved at 50 ft.
 - (ii) The steady gradient of climb shall be not less than 0,75 % at an altitude of 1 500 ft above the take-off surface with:
 - (A) the critical engine inoperative and its propeller in the minimum drag position;
 - (B) the remaining engine at not more than maximum continuous power;
 - (C) the landing gear retracted;

- (D) the wing flaps retracted; and
- (E) aclimb speed not less than $1,2 V_{SI}$.

(b) *Landing climb*

- (1) All engines operating
 - (i) The steady gradient of climb shall be at least 2.5 % with:
 - (A) not more than the power or thrust that is available eight seconds after initiation of movement of the power controls from the minimum flight idle position;
 - (B) the landing gear extended;
 - (C) the wing flaps in the landing position; and
 - (D) a climb speed equal to V_{REF} (reference landing speed).
 - (2) OEI
 - (i) The steady gradient of climb shall be not less than 0.75 % at an altitude of 1 500 ft above the landing surface with:
 - (A) the critical engine inoperative and its propeller in the minimum drag position;
 - (B) the remaining engine at not more than maximum continuous power;
 - (C) the landing gear retracted;
 - (D) the wing flaps retracted; and
 - (E) aclimb speed not less than $1,2 V_{SI}$.

CAT.POL.A.345 Approval of steep approach operations

- (a) Steep approach operations using glideslope angles of 4.5° or more and with screen heights of less than 60 ft, but not less than 35 ft, require prior approval by MCAA.
- (b) To obtain the approval, the operator shall provide evidence that the following conditions are met:
 - (1) the AFM states the maximum approved glideslope angle, any other limitations, normal, abnormal or emergency procedures for the steep approach as well as amendments to the field length data when using steep approach criteria; and
 - (2) for each aerodrome at which steep approach operations are to be conducted:
 - (i) a suitable glide path reference system, comprising at least a visual glide path indicating system, is available;
 - (ii) weather minima are specified; and
 - (iii) the following items are taken into consideration:
 - (A) the obstacle situation;
 - (B) the type of glide path reference and runway guidance;
 - (C) the minimum visual reference to be required at DH and MDA;
 - (D) available airborne equipment;
 - (E) pilot qualification and special aerodrome familiarisation;
 - (F) AFM limitations and procedures; and
 - (G) missed approach criteria.

CAT.POL.A.350 Approval of short landing operations

- (a) Short landing operations require prior approval by MCAA.
- (b) To obtain the approval, the operator shall provide evidence that the following conditions are met:
 - (1) the distance used for the calculation of the permitted landing mass may consist of the usable length of the declared safe area plus the declared LDA;
 - (2) the use of the declared safe area is approved by the State of the aerodrome;
 - (3) the declared safe area is clear of obstructions or depressions that would endanger an aeroplane undershooting the runway and no mobile object is permitted on the declared safe area while the runway is being used for short landing operations;
 - (4) the slope of the declared safe area does not exceed 5 % upward nor 2 % downward slope in the direction of landing;
 - (5) the usable length of the declared safe area does not exceed 90 m;
 - (6) the width of the declared safe area is not less than twice the runway width, centred on the extended runway centreline;
 - (7) the crossing height over the beginning of the usable length of the declared safe area is not less than 50 ft;

- (8) weather minima are specified for each runway to be used and are not less than the greater of VFR or NPA minima;
- (9) pilot experience, training and special aerodrome familiarisation requirements are specified and met;
- (10) additional conditions, if specified by MCAA, taking into account the aeroplane type characteristics, orographic characteristics in the approach area, available approach aids and missed approach/balked landing considerations.

CHAPTER 4 Performance class C

CAT.POL.A.400 Take-off

- (a) The take-off mass shall not exceed the maximum take-off mass specified in the AFM for the pressure altitude and the ambient temperature at the aerodrome of departure.
- (b) For aeroplanes that have take-off field length data contained in their AFM that do not include engine failure accountability, the distance from the start of the take-off roll required by the aeroplane to reach a height of 50 ft above the surface with all engines operating within the maximum take-off power conditions specified, when multiplied by a factor of either:
 - (1) 1,33 for aeroplanes having two engines;
 - (2) 1,25 for aeroplanes having three engines; or
 - (3) 1,18 for aeroplanes having four engines,shall not exceed the take-off run available (TORA) at the aerodrome at which the take-off is to be made.
- (c) For aeroplanes that have take-off field length data contained in their AFM which accounts for engine failure, the following requirements shall be met in accordance with the specifications in the AFM:
 - (1) the accelerate-stop distance shall not exceed the ASDA;
 - (2) the take-off distance shall not exceed the take-off distance available (TODA), with a clearway distance not exceeding half of the TORA;
 - (3) the take-off run shall not exceed the TORA;
 - (4) a single value of V_1 for the rejected and continued take-off shall be used; and
 - (5) on a wet or contaminated runway the take-off mass shall not exceed that permitted for a take-off on a dry runway under the same conditions.
- (d) The following shall be taken into account:
 - (1) the pressure altitude at the aerodrome;
 - (2) the ambient temperature at the aerodrome;
 - (3) the runway surface condition and the type of runway surface;
 - (4) the runway slope in the direction of take-off;
 - (5) not more than 50 % of the reported headwind component or not less than 150 % of the reported tailwind component; and
 - (6) the loss, if any, of runway length due to alignment of the aeroplane prior to take-off.

CAT.POL.A.405 Take-off obstacle clearance

- (a) The take-off flight path with OEI shall be determined such that the aeroplane clears all obstacles by a vertical distance of at least 50 ft plus $0,01 \times D$, or by a horizontal distance of at least 90 m plus $0,125 \times D$, where D is the horizontal distance the aeroplane has travelled from the end of the TODA. For aeroplanes with a wingspan of less than 60 m, a horizontal obstacle clearance of half the aeroplane wingspan plus 60 m plus $0,125 \times D$ may be used.
- (b) The take-off flight path shall begin at a height of 50 ft above the surface at the end of the take-off distance required by CAT.POL.A.405(b) or (c), as applicable, and end at a height of 1 500 ft above the surface.
- (c) When showing compliance with (a), the following shall be taken into account:
 - (1) the mass of the aeroplane at the commencement of the take-off run;
 - (2) the pressure altitude at the aerodrome;
 - (3) the ambient temperature at the aerodrome; and
 - (4) not more than 50 % of the reported headwind component or not less than 150 % of the reported tailwind component.

- (d) Track changes shall not be allowed up to that point of the take-off flight path where a height of 50 ft above the surface has been achieved. Thereafter, up to a height of 400 ft it is assumed that the aeroplane is banked by no more than 15°. Above 400 ft height bank angles greater than 15°, but not more than 25°, may be scheduled. Adequate allowance shall be made for the effect of bank angle on operating speeds and flight path, including the distance increments resulting from increased operating speeds.
- (e) For cases that do not require track changes of more than 15°; the operator does not need to consider those obstacles that have a lateral distance greater than:
 - (1) 300 m, if the pilot is able to maintain the required navigational accuracy through the obstacle accountability area; or
 - (2) 600 m, for flights under all other conditions.
- (f) For cases that do require track a change of more than 15°, the operator does not need to consider those obstacles that have a lateral distance greater than:
 - (1) 600 m, if the pilot is able to maintain the required navigational accuracy through the obstacle accountability area; or
 - (2) 900 m, for flights under all other conditions.
- (g) The operator shall establish contingency procedures to satisfy (a) to (f) and to provide a safe route, avoiding obstacles, to enable the aeroplane to either comply with the en-route requirements of CAT.POL.A.410, or land at either the aerodrome of departure or at a take-off alternate aerodrome.

CAT.POL.A.410 En-route — all engines operating

- (a) In the meteorological conditions expected for the flight, at any point on its route or on any planned diversion therefrom, the aeroplane shall be capable of a rate of climb of at least 300 ft per minute with all engines operating within the maximum continuous power conditions specified at:
 - (1) the minimum altitudes for safe flight on each stage of the route to be flown, or of any planned diversion therefrom, specified in or calculated from the information contained in the operations manual relating to the aeroplane; and
 - (2) the minimum altitudes necessary for compliance with the conditions prescribed in CAT.POL.A.415 and 420, as appropriate.

CAT.POL.A.415 En-route — OEI

- (a) In the meteorological conditions expected for the flight, in the event of any one engine becoming inoperative at any point on its route or on any planned diversion therefrom and with the other engine(s) operating within the maximum continuous power conditions specified, the aeroplane shall be capable of continuing the flight from the cruising altitude to an aerodrome where a landing can be made in accordance with CAT.POL.A.430 or CAT.POL.A.435, as appropriate. The aeroplane shall clear obstacles within 9.3 km (5 NM) either side of the intended track by a vertical interval of at least:
 - (1) 1 000 ft, when the rate of climb is zero or greater; or
 - (2) 2 000 ft, when the rate of climb is less than zero.
- (b) The flight path shall have a positive slope at an altitude of 450 m (1 500 ft) above the aerodrome where the landing is assumed to be made after the failure of one engine.
- (c) The available rate of climb of the aeroplane shall be taken to be 150 ft per minute less than the gross rate of climb specified.
- (d) The width margins of (a) shall be increased to 18.5 km (10 NM) if the navigational accuracy does not meet at least RNP5.
- (e) Fuel jettisoning is permitted to an extent consistent with reaching the aerodrome with the required fuel reserves, if a safe procedure is used.

CAT.POL.A.420 En-route — aeroplanes with three or more engines, two engines inoperative

- (a) At no point along the intended track shall an aeroplane having three or more engines be more than 90 minutes, at the all-engines long range cruising speed at standard temperature in still air, away from an aerodrome at which the performance requirements applicable at the expected landing mass are met, unless it complies with (b) to (e).
- (b) The two-engines-inoperative flight path shall permit the aeroplane to continue the flight, in the expected meteorological conditions, clearing all obstacles within 9,3 km (5 NM) either side of the intended track by a vertical interval of at least 2 000 ft, to an aerodrome at which the performance requirements applicable at the expected landing mass are met.
- (c) The two engines are assumed to fail at the most critical point of that portion of the route where the aeroplane is more than 90 minutes, at the all-engines long range cruising speed at standard temperature in still air, away from an aerodrome at which the performance requirements applicable at the expected landing mass are met.
- (d) The expected mass of the aeroplane at the point where the two engines are assumed to fail shall not be less than that which would include sufficient fuel to proceed to an aerodrome where the landing is assumed to be made, and to arrive there at an altitude of at least 450 m (1 500 ft) directly over the landing area and thereafter to fly level for 15 minutes.
- (e) The available rate of climb of the aeroplane shall be taken to be 150 ft per minute less than that specified.
- (f) The width margins of (b) shall be increased to 18.5 km (10 NM) if the navigational accuracy does not meet at least RNP5.
- (g) Fuel jettisoning is permitted to an extent consistent with reaching the aerodrome with the required fuel reserves, if a safe procedure is used.

CAT.POL.A.425 Landing — destination and alternate aerodromes

The landing mass of the aeroplane determined in accordance with CAT.POL.A.105 (a) shall not exceed the maximum landing mass specified in the AFM for the altitude and, if accounted for in the AFM, the ambient temperature expected for the estimated time of landing at the destination aerodrome and alternate aerodrome.

CAT.POL.A.430 Landing — dry runways

- (a) The landing mass of the aeroplane determined in accordance with CAT.POL.A.105 (a) for the estimated time of landing at the destination aerodrome and any alternate aerodrome shall allow a full stop landing from 50 ft above the threshold within 70 % of the LDA taking into account:
 - (1) the altitude at the aerodrome;
 - (2) not more than 50 % of the headwind component or not less than 150 % of the tailwind component;
 - (3) the type of runway surface; and
 - (4) the slope of the runway in the direction of landing.
- (b) For dispatching the aeroplane it shall be assumed that:
 - (1) the aeroplane will land on the most favourable runway in still air; and
 - (2) the aeroplane will land on the runway most likely to be assigned considering the probable wind speed and direction, the ground handling characteristics of the aeroplane and other conditions such as landing aids and terrain.
- (c) If the operator is unable to comply with (b) (2) for the destination aerodrome, the aeroplane shall only be dispatched if an alternate aerodrome is designated that permits full compliance with (a) and (b).

CAT.POL.A.435 Landing — wet and contaminated runways

- (a) When the appropriate weather reports and/or forecasts indicate that the runway at the estimated time of arrival may be wet, the LDA shall be equal to or exceed the required landing distance, determined in accordance with CAT.POL.A.430, multiplied by a factor of 1,15.

- (b) When the appropriate weather reports and/or forecasts indicate that the runway at the estimated time of arrival may be contaminated, the landing distance shall not exceed the LDA. The operator shall specify in the operations manual the landing distance data to be applied.

SECTION 2
Helicopters

CHAPTER 1
General requirements

CAT.POL.H.100 Applicability

- (a) Helicopters shall be operated in accordance with the applicable performance class requirements.
- (b) Helicopters shall be operated in performance class 1:
- (1) when operated to/from aerodromes or operating sites located in a congested hostile environment, except when operated to/from a public interest site (PIS) in accordance with CAT.POL.H.225; or
 - (2) when having an MOPSC of more than 19, except when operated to/from a helideck in performance class 2 under an approval in accordance with CAT.POL.H.305.
- (c) Unless otherwise prescribed by (b), helicopters that have an MOPSC of 19 or less but more than nine shall be operated in performance class 1 or 2.
- (d) Unless otherwise prescribed by (b), helicopters that have an MOPSC of nine or less shall be operated in performance class 1, 2 or 3.

CAT.POL.H.105 General

- (a) The mass of the helicopter:
- (1) at the start of the take-off; or
 - (2) in the event of in-flight replanning, at the point from which the revised operational flight plan applies, shall not be greater than the mass at which the applicable requirements of this Section can be complied with for the flight to be undertaken, taking into account expected reductions in mass as the flight proceeds and such fuel jettisoning as is provided for in the relevant requirement.
- (b) The approved performance data contained in the AFM shall be used to determine compliance with the requirements of this Section, supplemented as necessary with other data as prescribed in the relevant requirement. The operator shall specify such other data in the operations manual. When applying the factors prescribed in this Section, account may be taken of any operational factors already incorporated in the AFM performance data to avoid double application of factors.
- (c) When showing compliance with the requirements of this Section, account shall be taken of the following parameters:
- (1) mass of the helicopter;
 - (2) the helicopter configuration;
 - (3) the environmental conditions, in particular:
 - (i) pressure altitude and temperature;
 - (ii) wind:
 - (A) except as provided in (C), for take-off, take-off flight path and landing requirements, accountability for wind shall be no more than 50 % of any reported steady headwind component of 5 kt or more;
 - (B) where take-off and landing with a tailwind component is permitted in the AFM, and in all cases for the take-off flight path, not less than 150 % of any reported tailwind component shall be taken into account; and
 - (C) where precise wind measuring equipment enables accurate measurement of wind velocity over the point of take-off and landing, wind components in excess of 50 % may be established by the operator, provided that the operator demonstrates to MCAA that the proximity to the FATO and accuracy enhancements of the wind measuring equipment provide an equivalent level of safety;

- (4) the operating techniques; and
- (5) the operation of any systems that have an adverse effect on performance.

CAT.POL.H.110 Obstacle accountability

- (a) For the purpose of obstacle clearance requirements, an obstacle located beyond the FATO, in the take-off flight path, or the missed approach flight path shall be considered if its lateral distance from the nearest point on the surface below the intended flight path is not further than the following:
 - (1) For operations under VFR:
 - (i) half of the minimum width defined in the AFM — or, when no width is defined, ' $0,75 \times D$ ', where D is the largest dimension of the helicopter when the rotors are turning;
 - (ii) plus, the greater of ' $0,25 \times D$ ' or '3 m';
 - (iii) plus:
 - (A) $0,10 \times$ distance DR for operations under VFR by day; or
 - (B) $0,15 \times$ distance DR for operations under VFR at night.
 - (2) For operations under IFR:
 - (i) ' $1,5 D$ ' or 30 m, whichever is greater, plus:
 - (A) $0,10 \times$ distance DR, for operations under IFR with accurate course guidance;
 - (B) $0,15 \times$ distance DR, for operations under IFR with standard course guidance; or
 - (C) $0,30 \times$ distance DR for operations under IFR without course guidance.
 - (ii) When considering the missed approach flight path, the divergence of the obstacle accountability area only applies after the end of the take-off distance available.
 - (3) For operations with initial take-off conducted visually and converted to IFR/IMC at a transition point, the criteria required in (1) apply up to the transition point, and the criteria required in (2) apply after the transition point. The transition point cannot be located before the end of the take-off distance required for helicopters (TODRH) operating in performance class 1 or before the defined point after take-off (DPATO) for helicopters operating in performance class 2.
- (b) For take-off using a back-up or a lateral transition procedure, for the purpose of obstacle clearance requirements, an obstacle located in the back-up or lateral transition area shall be considered if its lateral distance from the nearest point on the surface below the intended flight path is not further than:
 - (1) half of the minimum width defined in the AFM or, when no width is defined, ' $0,75 \times D$ ';
 - (2) plus the greater of ' $0,25 \times D$ ' or '3 m';
 - (3) plus:
 - (i) for operations under VFR by day $0,10 \times$ the distance travelled from the back of the FATO, or
 - (ii) for operations under VFR at night $0,15 \times$ the distance travelled from the back of the FATO.
- (c) Obstacles may be disregarded if they are situated beyond:
 - (1) $7 \times$ rotor radius (R) for day operations, if it is assured that navigational accuracy can be achieved by reference to suitable visual cues during the climb;
 - (2) $10 \times R$ for night operations, if it is assured that navigational accuracy can be achieved by reference to suitable visual cues during the climb;
 - (3) 300 m if navigational accuracy can be achieved by appropriate navigation aids; or
 - (4) 900 m in all other cases.

CHAPTER 2

Performance class 1

CAT.POL.H.200 General

Helicopters operated in performance class 1 shall be certified in category A or equivalent as determined by MCAA.

CAT.POL.H.205 Take-off

- (a) The take-off mass shall not exceed the maximum take-off mass specified in the AFM for the procedure to be used.
- (b) The take-off mass shall be such that:

- (1) it is possible to reject the take-off and land on the FATO in case of the critical engine failure being recognised at or before the take-off decision point (TDP);
 - (2) the rejected take-off distance required (RTODRH) does not exceed the rejected take-off distance available (RTODAH); and
 - (3) the TODRH does not exceed the take-off distance available (TODAH).
 - (4) Notwithstanding (b)(3), the TODRH may exceed the TODAH if the helicopter, with the critical engine failure recognised at TDP can, when continuing the take-off, clear all obstacles to the end of the TODRH by a vertical margin of not less than 10,7 m (35 ft).
- (c) When showing compliance with (a) and (b), account shall be taken of the appropriate parameters of CAT.POL.H.105(c) at the aerodrome or operating site of departure.
- (d) That part of the take-off up to and including TDP shall be conducted in sight of the surface such that a rejected take-off can be carried out.
- (e) For take-off using a backup or lateral transition procedure, with the critical engine failure recognition at or before the TDP, all obstacles in the back-up or lateral transition area shall be cleared by an adequate margin.

CAT.POL.H.210 Take-off flight path

- (a) From the end of the TODRH with the critical engine failure recognised at the TDP:
- (1) The take-off mass shall be such that the take-off flight path provides a vertical clearance, above all obstacles located in the climb path, of not less than 10,7 m (35 ft) for operations under VFR and 10,7 m (35 ft) + 0,01 × distance DR for operations under IFR. Only obstacles as specified in CAT.POL.H.110 have to be considered.
 - (2) Where a change of direction of more than 15° is made, adequate allowance shall be made for the effect of bank angle on the ability to comply with the obstacle clearance requirements. This turn is not to be initiated before reaching a height of 61 m (200 ft) above the take-off surface unless it is part of an approved procedure in the AFM.
- (b) When showing compliance with (a), account shall be taken of the appropriate parameters of CAT.POL.H.105(c) at the aerodrome or operating site of departure.

CAT.POL.H.215 En-route — critical engine inoperative

- (a) The mass of the helicopter and flight path at all points along the route, with the critical engine inoperative and the meteorological conditions expected for the flight, shall permit compliance with (1), (2) or (3):
- (1) When it is intended that the flight will be conducted at any time out of sight of the surface, the mass of the helicopter permits a rate of climb of at least 50 ft/minute with the critical engine inoperative at an altitude of at least 300 m (1 000 ft), or 600 m (2 000 ft) in areas of mountainous terrain, above all terrain and obstacles along the route within 9,3 km (5 NM) on either side of the intended track.
 - (2) When it is intended that the flight will be conducted without the surface in sight, the flight path permits the helicopter to continue flight from the cruising altitude to a height of 300 m (1 000 ft) above a landing site where a landing can be made in accordance with CAT.POL.H.220. The flight path clears vertically, by at least 300 m (1 000 ft) or 600 m (2 000 ft) in areas of mountainous terrain, all terrain and obstacles along the route within 9.3 km (5 NM) on either side of the intended track. Drift-down techniques may be used.
 - (3) When it is intended that the flight will be conducted in VMC with the surface in sight, the flight path permits the helicopter to continue flight from the cruising altitude to a height of 300 m (1 000 ft) above a landing site where a landing can be made in accordance with CAT.POL.H.220, without flying at any time below the appropriate minimum flight altitude. Obstacles within 900 m on either side of the route need to be considered.
- (b) When showing compliance with (a)(2) or (a)(3):
- (1) the critical engine is assumed to fail at the most critical point along the route;
 - (2) account is taken of the effects of winds on the flight path;
 - (3) fuel jettisoning is planned to take place only to an extent consistent with reaching the aerodrome or operating site with the required fuel reserves and using a safe procedure; and
 - (4) fuel jettisoning is not planned below 1 000 ft above terrain.

- (c) The width margins of (a)(1) and (a)(2) shall be increased to 18,5 km (10 NM) if the navigational accuracy cannot be met for 95 % of the total flight time.

CAT.POL.H.220 Landing

- (a) The landing mass of the helicopter at the estimated time of landing shall not exceed the maximum mass specified in the AFM for the procedure to be used.
- (b) In the event of the critical engine failure being recognised at any point at or before the landing decision point (LDP), it is possible either to land and stop within the FATO, or to perform a balked landing and clear all obstacles in the flight path by a vertical margin of 10.7 m (35 ft). Only obstacles as specified in CAT.POL.H.110 have to be considered.
- (c) In the event of the critical engine failure being recognised at any point at or after the LDP, it is possible to:
- (1) clear all obstacles in the approach path; and
 - (2) land and stop within the FATO.
- (d) When showing compliance with (a) to (c), account shall be taken of the appropriate parameters of CAT.POL.H.105(c) for the estimated time of landing at the destination aerodrome or operating site, or any alternate if required.
- (e) That part of the landing from the LDP to touchdown shall be conducted in sight of the surface.

CAT.POL.H.225 Helicopter operations to/from a public interest site

- (a) Operations to/from a public interest site (PIS) may be conducted in performance class 2, without complying with CAT.POL.H.310 (b) or CAT.POL.H.325 (b), provided that all of the following are complied with:
- (1) the PIS was in use before 1 July 2002;
 - (2) the size of the PIS or obstacle environment does not permit compliance with the requirements for operation in performance class 1;
 - (3) the operation is conducted with a helicopter with an MOPSC of six or less;
 - (4) the operator complies with CAT.POL.H.305(b)(2) and (b)(3);
 - (5) the helicopter mass does not exceed the maximum mass specified in the AFM for a climb gradient of 8 % in still air at the appropriate take-off safety speed (V_{TOSS}) with the critical engine inoperative and the remaining engines operating at an appropriate power rating; and
 - (6) the operator has obtained prior approval for the operation from MCAA. Before such operations take place in another State, the operator shall obtain an endorsement from the authority of that State.
- (b) Site-specific procedures shall be established in the operations manual to minimise the period during which there would be danger to helicopter occupants and persons on the surface in the event of an engine failure during take-off and landing.
- (c) The operations manual shall contain for each PIS: a diagram or annotated photograph, showing the main aspects, the dimensions, the non-conformance with the requirements performance class 1, the main hazards and the contingency plan should an incident occur.

CHAPTER 3

Performance class 2

CAT.POL.H.300 General

Helicopters operated in performance class 2 shall be certified in category A or equivalent as determined by MCAA.

CAT.POL.H.305 Operations without an assured safe forced landing capability

- (a) Operations without an assured safe forced landing capability during the take-off and landing phases shall only be conducted if the operator has been granted an approval by MCAA.

- (b) To obtain and maintain such approval the operator shall:
 - (1) conduct a risk assessment, specifying:
 - (i) the type of helicopter; and
 - (ii) the type of operations;
 - (2) implement the following set of conditions:
 - (i) attain and maintain the helicopter/engine modification standard defined by the manufacturer;
 - (ii) conduct the preventive maintenance actions recommended by the helicopter or engine manufacturer;
 - (iii) include take-off and landing procedures in the operations manual, where they do not already exist in the AFM;
 - (iv) specify training for flight crew; and
 - (v) provide a system for reporting to the manufacturer loss of power, engine shutdown or engine failure events; and
 - (3) implement a usage monitoring system (UMS).

CAT.POL.H.310 Take-off

- (a) The take-off mass shall not exceed the maximum mass specified for a rate of climb of 150 ft/min at 300 m (1 000 ft) above the level of the aerodrome or operating site with the critical engine inoperative and the remaining engine(s) operating at an appropriate power rating.
- (b) For operations other than those specified in CAT.POL.H.305, the take-off shall be conducted such that a safe forced landing can be executed until the point where safe continuation of the flight is possible.
- (c) For operations in accordance with CAT.POL.H.305, in addition to the requirements of (a):
 - (1) the take-off mass shall not exceed the maximum mass specified in the AFM for an all engines operative out of ground effect (AEO OGE) hover in still air with all engines operating at an appropriate power rating; or
 - (2) for operations from a helideck:
 - (i) with a helicopter that has an MOPSC of more than 19; or
 - (ii) any helicopter operated from a helideck located in a hostile environment, the take-off mass shall take into account: the procedure; deck-edge miss and drop down appropriate to the height of the helideck with the critical engine(s) inoperative and the remaining engines operating at an appropriate power rating.
- (d) When showing compliance with (a) to (c), account shall be taken of the appropriate parameters of CAT.POL.H.105(c) at the point of departure.
- (e) That part of the take-off before the requirement of CAT.POL.H.315 is met shall be conducted in sight of the surface.

CAT.POL.H.315 Take-off flight path

From the defined point after take-off (DPATO) or, as an alternative, no later than 200 ft above the take-off surface, with the critical engine inoperative, the requirements of CAT.POL.H.210(a)(1), (a)(2) and (b) shall be complied with.

CAT.POL.H.320 En-route — critical engine inoperative

The requirement of CAT.POL.H.215 shall be complied with.

CAT.POL.H.325 Landing

- (a) The landing mass at the estimated time of landing shall not exceed the maximum mass specified for a rate of climb of 150 ft/min at 300 m (1 000 ft) above the level of the aerodrome or operating site with the critical engine inoperative and the remaining engine(s) operating at an appropriate power rating.
- (b) If the critical engine fails at any point in the approach path:
 - (1) a balked landing can be carried out meeting the requirement of CAT.POL.H.315; or

- (2) for operations other than those specified in CAT.POL.H.305, the helicopter can perform a safe forced landing.
- (c) For operations in accordance with CAT.POL.H.305, in addition to the requirements of (a):
 - (1) the landing mass shall not exceed the maximum mass specified in the AFM for an AEO OGE hover in still air with all engines operating at an appropriate power rating; or
 - (2) for operations to a helideck:
 - (i) with a helicopter that has an MOPSC of more than 19; or
 - (ii) any helicopter operated to a helideck located in a hostile environment, the landing mass shall take into account the procedure and drop down appropriate to the height of the helideck with the critical engine inoperative and the remaining engine(s) operating at an appropriate power rating.
- (d) When showing compliance with (a) to (c), account shall be taken of the appropriate parameters of CAT.POL.H.105(c) at the destination aerodrome or any alternate, if required.
- (e) That part of the landing after which the requirement of (b) (1) cannot be met shall be conducted in sight of the surface.

CHAPTER 4

Performance class 3

CAT.POL.H.400 General

- (a) Helicopters operated in performance class 3 shall be certified in category A or equivalent as determined by the MCAA, or category B.
- (b) Operations shall only be conducted in a non-hostile environment, except:
 - (1) when operating in accordance with CAT.POL.H.420; or
 - (2) for the take-off and landing phase, when operating in accordance with (c).
- (c) Provided the operator is approved in accordance with CAT.POL.H.305, operations may be conducted to/from an aerodrome or operating site located outside a congested hostile environment without an assured safe forced landing capability:
 - (1) during take-off, before reaching V_y (speed for best rate of climb) or 200 ft above the take-off surface; or
 - (2) during landing, below 200 ft above the landing surface.
- (d) Operations shall not be conducted:
 - (1) out of sight of the surface;
 - (2) at night;
 - (3) when the ceiling is less than 600 ft; or
 - (4) when the visibility is less than 800 m.

CAT.POL.H.405 Take-off

- (a) The take-off mass shall be the lower of:
 - (1) the MCTOM; or
 - (2) the maximum take-off mass specified for a hover in ground effect with all engines operating at take-off power, or if conditions are such that a hover in ground effect is not likely to be established, the take-off mass specified for a hover out of ground effect with all engines operating at take-off power.
- (b) Except as provided in CAT.POL.H.400 (b), in the event of an engine failure the helicopter shall be able to perform a safe forced landing.

CAT.POL.H.410 En-route

- (a) The helicopter shall be able, with all engines operating within the maximum continuous power conditions, to continue along its intended route or to a planned diversion without flying at any point below the appropriate minimum flight altitude.
- (b) Except as provided in CAT.POL.H.420, in the event of an engine failure the helicopter shall be able to perform a safe forced landing.

CAT.POL.H.415 Landing

- (a) The landing mass of the helicopter at the estimated time of landing shall be the lower of:
 - (1) the maximum certified landing mass; or
 - (2) the maximum landing mass specified for a hover in ground effect, with all engines operating at take-off power, or if conditions are such that a hover in ground effect is not likely to be established, the landing mass for a hover out of ground effect with all engines operating at take-off power.
- (b) Except as provided in CAT.POL.H.400 (b), in the event of an engine failure, the helicopter shall be able to perform a safe forced landing.

CAT.POL.H.420 Helicopter operations over a hostile environment located outside a congested area

- (a) Operations over a non-congested hostile environment without a safe forced landing capability with turbine-powered helicopters with an MOPSC of six or less shall only be conducted if the operator has been granted an approval by MCAA, following a safety risk assessment performed by the operator.
- (b) To obtain and maintain such approval the operator shall:
 - (1) only conduct these operations in the areas and under the conditions specified in the approval;
 - (2) not conduct these operations under a HEMS approval;
 - (3) substantiate that helicopter limitations, or other justifiable considerations, preclude the use of the appropriate performance criteria; and
 - (4) be approved in accordance with CAT.POL.H.305(b).
- (c) Notwithstanding CAT.IDE.H.240, such operations may be conducted without supplemental oxygenequipment; provided the cabin altitude does not exceed 10 000 ft for a period in excess of 30 minutes and never exceeds 13 000 ft pressure altitude.

SECTION 3 *Mass and balance*

CHAPTER 1 **Motor - powered aircraft**

CAT.POL.MAB.100 Mass and balance, loading

- (a) During any phase of operation, the loading, mass and centre of gravity (CG) of the aircraft shall comply with the limitations specified in the AFM, or the operations manual if more restrictive.
- (b) The operator shall establish the mass and the CG of any aircraft by actual weighing prior to initial entry into service and thereafter at intervals of four years if individual aircraft masses are used, or nine years if fleet masses are used. The accumulated effects of modifications and repairs on the mass and balance shall be accounted for and properly documented. Aircraft shall be reweighed if the effect of modifications on the mass and balance is not accurately known.
- (c) The weighing shall be accomplished by the manufacturer of the aircraft or by an approved maintenance organisation.

- (d) The operator shall determine the mass of all operating items and crew members included in the aircraft dry operating mass by weighing or by using standard masses. The influence of their position on the aircraft's CG shall be determined.
- (e) The operator shall establish the mass of the traffic load, including any ballast, by actual weighing or by determining the mass of the traffic load in accordance with standard passenger and baggage masses.
- (f) In addition to standard masses for passengers and checked baggage, the operator can use standard masses for other load items, if it demonstrates to MCAA that these items have the same mass or that their masses are within specified tolerances.
- (g) The operator shall determine the mass of the fuel load by using the actual density or, if not known, the density calculated in accordance with a method specified in the operations manual.
- (h) The operator shall ensure that the loading of:
 - (1) its aircraft is performed under the supervision of qualified personnel; and
 - (2) traffic load is consistent with the data used for the calculation of the aircraft mass and balance.
- (i) The operator shall comply with additional structural limits such as the floor strength limitations, the maximum load per running metre, the maximum mass per cargo compartment and the maximum seating limit. For helicopters, in addition, the operator shall take account of in-flight changes in loading.
- (j) The operator shall specify, in the operations manual, the principles and methods involved in the loading and in the mass and balance system that meet the requirements contained in (a) to (i). This system shall cover all types of intended operations.

CAT.POL.MAB.105 Mass and balance data and documentation

- (a) The operator shall establish mass and balance data and produce mass and balance documentation prior to each flight specifying the load and its distribution. The mass and balance documentation shall enable the commander to determine that the load and its distribution is such that the mass and balance limits of the aircraft are not exceeded. The mass and balance documentation shall contain the following information:
 - (1) Aircraft registration and type;
 - (2) Flight identification, number and date;
 - (3) Name of the commander;
 - (4) Name of the person who prepared the document;
 - (5) Dry operating mass and the corresponding CG of the aircraft:
 - (i) for performance class B aeroplanes and for helicopters the CG position may not need to be on the mass and balance documentation if, for example, the load distribution is in accordance with a pre-calculated balance table or if it can be shown that for the planned operations a correct balance can be ensured, whatever the real load is;
 - (6) Mass of the fuel at take-off and the mass of trip fuel;
 - (7) Mass of consumables other than fuel, if applicable;
 - (8) Load components including passengers, baggage, freight and ballast;
 - (9) Take-off mass, landing mass and zero fuel mass;
 - (10) Applicable aircraft CG positions; and
 - (11) The limiting mass and CG values.

The information above shall be available in flight planning documents or mass and balance systems. Some of this information may be contained in other documents readily available for use.
- (b) Where mass and balance data and documentation is generated by a computerised mass and balance system, the operator shall verify the integrity of the output data.
- (c) The person supervising the loading of the aircraft shall confirm by hand signature or equivalent that the load and its distribution are in accordance with the mass and balance documentation given to the commander. The commander shall indicate his/her acceptance by hand signature or equivalent.

- (d) The operator shall specify procedures for last minute changes to the load to ensure that:
 - (1) any last minute change after the completion of the mass and balance documentation is brought to the attention of the commander and entered in the flight planning documents containing the mass and balance documentation;
 - (2) the maximum last minute change allowed in passenger numbers or hold load is specified; and
 - (3) new mass and balance documentation is prepared if this maximum number is exceeded.
- (e) The operator shall obtain approval by MCAA if he/she wishes to use an onboard integrated mass and balance computer system or a stand-alone computerised mass and balance system as a primary source for dispatch. The operator shall demonstrate the accuracy and reliability of that system.

SECTION 4 **Sailplanes**

CAT.POL.S.100 Operating limitations

- (a) During any phase of operation, the loading, the mass and the centre of gravity (CG) position of the sailplane shall comply with any limitation specified in the AFM or the operations manual (OM) if more restrictive.
- (b) Placards, listings, instrument markings, or combinations thereof, containing those operating limitations prescribed by the AFM for visual presentation, shall be displayed in the sailplane.

CAT.POL.S.105 Weighing

- (a) The operator shall ensure that the mass and the CG of the sailplane have been established by actual weighing prior to initial entry into service. The accumulated effects of modifications and repairs on the mass and balance shall be accounted for and properly documented. Such information shall be made available to the commander. The sailplane shall be reweighed if the effect of modifications on the mass and balance is not accurately known.
- (b) The weighing shall be accomplished by the manufacturer of the sailplane or in accordance with Regulations, as applicable.

CAT.POL.S.110 Performance

The commander shall only operate the sailplane 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.

SECTION 5 **Balloons**

CAT.POL.B.100 Operating limitations

- (a) During any phase of operation, the loading and the mass of the balloon shall comply with any limitation specified in the AFM or the operations manual (OM) if more restrictive.
- (b) Placards, listings, instrument markings, or combinations thereof, containing those operating limitations prescribed by the AFM for visual presentation, shall be displayed in the balloon.

CAT.POL.B.105 Weighing

- (a) The operator shall ensure that the mass of the balloon has been established by actual weighing prior to initial entry into service. The accumulated effects of modifications and repairs on the mass shall be accounted for and properly documented. Such information shall be made available to the commander. The balloon shall be reweighed if the effect of modifications on the mass is not accurately known.

- (b) The weighing shall be accomplished by the manufacturer of the balloon or in accordance with Regulations, as applicable.

CAT.POL.B.110 System for determining the mass

- (a) The operator of a balloon shall establish a system specifying how the following items are accurately determined for each flight so to enable the commander to verify that the limitations of the AFM are complied with:
- (1) balloon empty mass;
 - (2) mass of the traffic load;
 - (3) mass of the fuel or ballast load;
 - (4) take-off mass;
 - (5) loading of the balloon performed under the supervision of the commander or qualified personnel;
 - (6) preparation and disposition of all documentation.
- (b) The mass computation based on electronic calculations shall be replicable by the commander.
- (c) The mass documentation shall be prepared prior to each flight and documented in an operational flight plan.

CAT.POL.B.115 Performance

The commander shall only operate the balloon 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.

SUBPART D
INSTRUMENTS, DATA, EQUIPMENT

SECTION 1
Aeroplanes

CAT.IDE.A.100 Instruments and equipment — general

- (a) Instruments and equipment required by this Subpart shall be approved in accordance with Regulations, except for the following items:
- (1) Spare fuses;
 - (2) Independent portable lights;
 - (3) An accurate time piece;
 - (4) Chart holder;
 - (5) First-aid kits;
 - (6) Emergency medical kit;
 - (7) Megaphones;
 - (8) Survival and signalling equipment;
 - (9) Sea anchors and equipment for mooring; and
 - (10) Child restraint devices.
- (b) Instruments and equipment not required by this Subpart that do not need to be approved in accordance with Regulations, but are 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 this Regulation or CAT.IDE.A.330, CAT.IDE.A.335, CAT.IDE.A.340 and CAT.IDE.A.345; and
 - (2) the instruments and equipment shall not affect the airworthiness of the aeroplane, even in the case of failures or malfunction.
- (c) If equipment is to be used by one flight crew member at his/her station during flight, it shall be readily operable from that station. When a single item of equipment is required to be operated by more than one flight crew member it shall be installed so that the equipment is readily operable from any station at which the equipment is required to be operated.
- (d) Those instruments that are used by any flight crew member shall be so arranged as to permit the flight crew member to see the indications readily from his/her station, with the minimum practicable deviation from the position and line of vision that he/she normally assumes when looking forward along the flight path.
- (e) All required emergency equipment shall be easily accessible for immediate use.

CAT.IDE.A.105 Minimum equipment for flight

A flight shall not be commenced when any of the aeroplane's 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 operator's MEL; or
- (b) the operator is approved by MCAA to operate the aeroplane within the constraints of the master minimum equipment list (MMEL).

CAT.IDE.A.110 Spare electrical fuses

- (a) 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.
- (b) The number of spare fuses that are required to be carried shall be the higher of:
 - (1) 10 % of the number of fuses of each rating; or
 - (2) three fuses for each rating.

CAT.IDE.A.115 Operating lights

- (a) Aeroplanes operated by day shall be equipped with:
 - (1) an anti-collision light system;
 - (2) 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;
 - (3) lighting supplied from the aeroplane's electrical system to provide illumination in all passenger compartments; and
 - (4) an independent portable light for each required crew member readily accessible to crew members when seated at their designated stations.

- (b) Aeroplanes operated at night shall in addition be equipped with:
 - (1) navigation/position lights;
 - (2) two landing lights or a single light having two separately energised filaments; and
 - (3) lights to conform with the International Regulations for Preventing Collisions at Sea if the aeroplane is operated as a seaplane.

CAT.IDE.A.120 Equipment to clear windshield

Aeroplanes with an MCTOM of more than 5 700 kg shall be equipped at each pilot station with a means to maintain a clear portion of the windshield during precipitation.

CAT.IDE.A.125 Operations under VFR by day — flight and navigational instruments and associated equipment

- (a) Aeroplanes operated under VFR by day shall be equipped with the following equipment, available at the pilot's station:
 - (1) A means of measuring and displaying:
 - (i) Magnetic heading;
 - (ii) Time in hours, minutes, and seconds;
 - (iii) Pressure altitude;
 - (iv) Indicated airspeed;
 - (v) Vertical speed;
 - (vi) Turn and slip;
 - (vii) Attitude;
 - (viii) Heading;
 - (ix) Outside air temperature; and
 - (x) Mach number whenever speed limitations are expressed in terms of Mach number.
 - (2) A means of indicating when the supply of power to the required flight instruments is not adequate.

- (b) Whenever two pilots are required for the operation, an additional separate means of displaying the following shall be available for the second pilot:
 - (1) Pressure altitude;
 - (2) Indicated airspeed;
 - (3) Vertical speed;
 - (4) Turn and slip;
 - (5) Attitude; and
 - (6) Heading.

- (c) A means for preventing malfunction of the airspeed indicating systems due to condensation or icing shall be available for:
 - (1) aeroplanes with an MCTOM of more than 5 700 kg or an MOPSC of more than nine; and
 - (2) aeroplanes first issued with an individual CofA on or after 1 April 1999.

- (d) Single engine aeroplanes first issued with an individual CofA before 22 May 1995 are exempted from the requirements of (a)(1)(vi), (a)(1)(vii), (a)(1)(viii) and (a)(1)(ix) if the compliance would require retrofitting.

CAT.IDE.A.130 Operations under IFR or at night — flight and navigational instruments and associated equipment

Aeroplanes operated under VFR at night or under IFR shall be equipped with the following equipment, available at the pilot's station:

- (a) A means of measuring and displaying:
 - (1) Magnetic heading;
 - (2) Time in hours, minutes and seconds;
 - (3) Indicated airspeed;
 - (4) Vertical speed;
 - (5) Turn and slip, or in the case of aeroplanes equipped with a standby means of measuring and displaying attitude, slip;
 - (6) Attitude;
 - (7) Stabilised heading;
 - (8) Outside air temperature; and
 - (9) Mach number whenever speed limitations are expressed in terms of Mach number.
- (b) Two means of measuring and displaying pressure altitude.
- (c) A means of indicating when the supply of power to the required flight instruments is not adequate.
- (d) A means for preventing malfunction of the airspeed indicating systems required in (a)(3) and (h)(2) due to condensation or icing.
- (e) A means of annunciating to the flight crew the failure of the means required in (d) for aeroplanes:
 - (1) issued with an individual CofA on or after 1 April 1998; or
 - (2) issued with an individual CofA before 1 April 1998 with an MCTOM of more than 5 700 kg, and with an MOPSC of more than nine.
- (f) Except for propeller-driven aeroplanes with an MCTOM of 5 700 kg or less, two independent static pressure systems.
- (g) One static pressure system and one alternate source of static pressure for propeller-driven aeroplanes with an MCTOM of 5 700 kg or less.
- (h) Whenever two pilots are required for the operation, a separate means of displaying for the second pilot:
 - (1) Pressure altitude;
 - (2) Indicated airspeed;
 - (3) Vertical speed;
 - (4) Turn and slip;
 - (5) Attitude; and
 - (6) Stabilised heading.
- (i) A standby means of measuring and displaying attitude capable of being used from either pilot's station for aeroplanes with an MCTOM of more than 5 700 kg or an MOPSC of more than nine that:
 - (1) is powered continuously during normal operation and, after a total failure of the normal electrical generating system, is powered from a source independent from the normal electrical generating system;
 - (2) provides reliable operation for a minimum of 30 minutes after total failure of the normal electrical generating system, taking into account other loads on the emergency power supply and operational procedures;
 - (3) operates independently of any other means of measuring and displaying attitude;
 - (4) is operative automatically after total failure of the normal electrical generating system;
 - (5) is appropriately illuminated during all phases of operation, except for aeroplanes with an MCTOM of 5700 kg or less, already registered on 1 April 1995 and equipped with a standby attitude indicator in the left-hand instrument panel;
 - (6) is clearly evident to the flight crew when the standby attitude indicator is being operated by emergency power; and
 - (7) where the standby attitude indicator has its own dedicated power supply, has an associated indication, either on the instrument or on the instrument panel, when this supply is in use.
- (j) A chart holder in an easily readable position that can be illuminated for night operations.

CAT.IDE.A.135 Additional equipment for single-pilot operation under IFR

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

CAT.IDE.A.140 Altitude alerting system

- (a) The following aeroplanes shall be equipped with an altitude alerting system:
 - (1) turbine propeller powered aeroplanes with an MCTOM of more than 5 700 kg or having an MOPSC of more than nine; and
 - (2) aeroplanes powered by turbo-jet engines.
- (b) The altitude alerting system shall be capable of:
 - (1) alerting the flight crew when approaching a preselected altitude; and
 - (2) alerting the flight crew by at least an aural signal, when deviating from a preselected altitude.
- (c) Notwithstanding (a), aeroplanes with an MCTOM of 5 700 kg or less, having an MOPSC of more than nine, first issued with an individual CofA before 1 April 1972 and already registered on 1 April 1995 are exempted from being equipped with an altitude alerting system.

CAT.IDE.A.150 Terrain awareness warning system (TAWS)

- (a) Turbine-powered aeroplanes having an MCTOM of more than 5 700 kg or an MOPSC of more than nine shall be equipped with TAWS that meets the requirements for Class A equipment as specified in an acceptable standard.
- (b) Reciprocating-engine-powered aeroplanes with an MCTOM of more than 5 700 kg or an MOPSC of more than nine shall be equipped with a TAWS that meets the requirement for Class B equipment as specified in an acceptable standard.

CAT.IDE.A.155 Airborne collision avoidance system (ACAS)

Unless otherwise provided for by Regulation, turbine-powered aeroplanes with an MCTOM of more than 5 700 kg or an MOPSC of more than 19 shall be equipped with ACAS II.

CAT.IDE.A.160 Airborne weather detecting equipment

The following shall be equipped with airborne weather detecting equipment when operated at night or in IMC in areas where thunderstorms or other potentially hazardous weather conditions, regarded as detectable with airborne weather detecting equipment, may be expected to exist along the route:

- (a) pressurised aeroplanes;
- (b) non-pressurised aeroplanes with an MCTOM of more than 5 700 kg; and
- (c) non-pressurised aeroplanes with an MOPSC of more than nine.

CAT.IDE.A.165 Additional equipment for operations in icing conditions at night

- (a) Aeroplanes operated in expected or actual icing conditions at night shall be equipped with a means to illuminate or detect the formation of ice.
- (b) The means to illuminate the formation of ice shall not cause glare or reflection that would handicap crew members in the performance of their duties.

CAT.IDE.A.170 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.

CAT.IDE.A.175 Crew member interphone system

Aeroplanes with an MCTOM of more than 15 000 kg, or with an MOPSC of more than 19 shall be equipped with a crew member interphone system, except for aeroplanes first issued with an individual C of A before 1 April 1965 and already registered on 1 April 1995.

CAT.IDE.A.180 Public address system

Aeroplanes with an MOPSC of more than 19 shall be equipped with a public address system.

CAT.IDE.A.185 Cockpit voice recorder

- (a) The following aeroplanes shall be equipped with a cockpit voice recorder (CVR):
 - (1) aeroplanes with an MCTOM of more than 5 700 kg; and
 - (2) multi-engined turbine-powered aeroplanes with an MCTOM of 5 700 kg or less, with an MOPSC of more than nine and first issued with an individual CofA on or after 1 January 1990.
- (b) The CVR shall be capable of retaining the data recorded during at least:
 - (1) the preceding two hours in the case of aeroplanes referred to in (a)(1) when the individual CofA has been issued on or after 1 April 1998;
 - (2) the preceding 30 minutes for aeroplanes referred to in (a)(1) when the individual CofA has been issued before 1 April 1998; or
 - (3) the preceding 30 minutes, in the case of aeroplanes referred to in (a)(2).
- (c) The CVR shall record with reference to a timescale:
 - (1) voice communications transmitted from or received in the flight crew compartment by radio;
 - (2) flight crew members' voice communications using the interphone system and the public address system, if installed;
 - (3) the aural environment of the flight crew compartment, including without interruption:
 - (i) for aeroplanes first issued with an individual CofA on or after 1 April 1998, the audio signals received from each boom and mask microphone in use;
 - (ii) for aeroplanes referred to in (a)(2) and first issued with an individual CofA before 1 April 1998, the audio signals received from each boom and mask microphone, where practicable; and
 - (4) voice or audio signals identifying navigation or approach aids introduced into a headset or speaker.
- (d) The CVR shall start to record prior to the aeroplane moving under its own power and shall continue to record until the termination of the flight when the aeroplane is no longer capable of moving under its own power. In addition, in the case of aeroplanes issued with an individual CofA on or after 1 April 1998, the CVR shall start automatically to record prior to the aeroplane moving under its own power and continue to record until the termination of the flight when the aeroplane is no longer capable of moving under its own power.
- (e) In addition to (d), depending on the availability of electrical power, the CVR shall start to record as early as possible during the cockpit checks prior to engine start at the beginning of the flight until the cockpit checks immediately following engine shutdown at the end of the flight, in the case of:
 - (1) aeroplanes referred to in (a)(1) and issued with an individual CofA after 1 April 1998; or
 - (2) aeroplanes referred to in (a)(2).
- (f) The CVR shall have a device to assist in locating it in water.

CAT.IDE.A.190 Flight data recorder

- (a) The following aeroplanes shall be equipped with a flight data recorder (FDR) that uses a digital method of recording and storing data and for which a method of readily retrieving that data from the storage medium is available:
 - (1) aeroplanes with an MCTOM of more than 5 700 kg and first issued with an individual CofA on or after 1 June 1990;
 - (2) turbine-engined aeroplanes with an MCTOM of more than 5 700 kg and first issued with an individual CofA before 1 June 1990; and

- (3) multi-engined turbine-powered aeroplanes with an MCTOM of 5 700 kg or less, with an MOPSC of more than nine and first issued with an individual CofA on or after 1 April 1998.
- (b) The FDR shall record:
 - (1) time, altitude, airspeed, normal acceleration and heading and be capable of retaining the data recorded during at least the preceding 25 hours for aeroplanes referred to in (a)(2) with an MCTOM of less than 27 000 kg;
 - (2) the parameters required to determine accurately the aeroplane flight path, speed, attitude, engine power and configuration of lift and drag devices and be capable of retaining the data recorded during at least the preceding 25 hours, for aeroplanes referred to in (a)(1) with an MCTOM of less than 27 000 kg and first issued with an individual CofA before 1 January 2016;
 - (3) the parameters required to determine accurately the aeroplane flight path, speed, attitude, engine power, configuration and operation and be capable of retaining the data recorded during at least the preceding 25 hours, for aeroplanes referred to in (a)(1) and (a)(2) with an MCTOM of over 27 000 kg and first issued with an individual CofA before 1 January 2016;
 - (4) the parameters required to determine accurately the aeroplane flight path, speed, attitude, engine power and configuration of lift and drag devices and be capable of retaining the data recorded during at least the preceding 10 hours, in the case of aeroplanes referred to in (a)(3) and first issued with an individual CofA before 1 January 2016; or
 - (5) the parameters required to determine accurately the aeroplane flight path, speed, attitude, engine power, configuration and operation and be capable of retaining the data recorded during at least the preceding 25 hours, for aeroplanes referred to in (a)(1) and (a)(3) and first issued with an individual CofA on or after 1 January 2016.
- (c) Data shall be obtained from aeroplane sources that enable accurate correlation with information displayed to the flight crew.
- (d) The FDR shall start to record the data prior to the aeroplane being capable of moving under its own power and shall stop after the aeroplane is incapable of moving under its own power. In addition, in the case of aeroplanes issued with an individual CofA on or after 1 April 1998, the FDR shall start automatically to record the data prior to the aeroplane being capable of moving under its own power and shall stop automatically after the aeroplane is incapable of moving under its own power.
- (e) The FDR shall have a device to assist in locating it in water.

CAT.IDE.A.195 Data link recording

- (a) Aeroplanes first issued with an individual CofA on or after 8 April 2014 that have the capability to operate data link communications and are required to be equipped with a CVR, shall record on a recorder, where applicable:
 - (1) data link communication messages related to ATS communications to and from the aeroplane, including messages applying to the following applications:
 - (i) data link initiation;
 - (ii) controller-pilot communication;
 - (iii) addressed surveillance;
 - (iv) flight information;
 - (v) as far as is practicable, given the architecture of the system, aircraft broadcast surveillance;
 - (vi) as far as is practicable, given the architecture of the system, aircraft operational control data; and
 - (vii) as far as is practicable, given the architecture of the system, graphics;
 - (2) information that enables correlation to any associated records related to data link communications and stored separately from the aeroplane; and
 - (3) information on the time and priority of data link communications messages, taking into account the system's architecture.
- (b) The recorder shall use a digital method of recording and storing data and information and a method for retrieving that data. The recording method shall allow the data to match the data recorded on the ground.
- (c) The recorder shall be capable of retaining data recorded for at least the same duration as set out for CVRs in CAT.IDE.A.185.

- (d) The recorder shall have a device to assist in locating it in water.
- (e) The requirements applicable to the start and stop logic of the recorder are the same as the requirements applicable to the start and stop logic of the CVR contained in CAT.IDE.A.185 (d) and (e).

CAT.IDE.A.200 Combination recorder

Compliance with CVR and FDR requirements may be achieved by:

- (a) one flight data and cockpit voice combination recorder in the case of aeroplanes required to be equipped with a CVR or an FDR;
- (b) one flight data and cockpit voice combination recorder in the case of aeroplanes with an MCTOM of 5 700 kg or less and required to be equipped with a CVR and an FDR; or
- (c) two flight data and cockpit voice combination recorders in the case of aeroplanes with an MCTOM of more than 5 700 kg and required to be equipped with a CVR and an FDR.

CAT.IDE.A.205 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 except as specified in (3);
 - (3) a seat belt with upper torso restraint system on each passenger seat and restraining belts on each berth in the case of aeroplanes with an MCTOM of less than 5 700 kg and with an MOPSC of less than nine, after 8 April 2015;
 - (4) a child restraint device (CRD) for each person on board younger than 24 months;
 - (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:
 - (i) on each flight crew seat and on any seat alongside a pilot's seat;
 - (ii) on each observer seat located in the flight crew compartment;
 - (6) a seat belt with upper torso restraint system on each seat for the minimum required cabin crew.
- (b) A seat belt with upper torso restraint system shall:
 - (1) have a single point release;
 - (2) on flight crew seats, on any seat alongside a pilot's seat and on the seats for the minimum required cabin crew, include two shoulder straps and a seat belt that may be used independently.

CAT.IDE.A.210 Fasten seat belt and no smoking signs

Aeroplanes in which not all passenger seats are visible from the flight crew seat(s) shall be equipped with a means of indicating to all passengers and cabin crew when seat belts shall be fastened and when smoking is not allowed.

CAT.IDE.A.215 Internal doors and curtains

Aeroplanes shall be equipped with:

- (a) in the case of aeroplanes with an MOPSC of more than 19, a door between the passenger compartment and the flight crew compartment, with a placard indicating 'crew only' and a locking means to prevent passengers from opening it without the permission of a member of the flight crew;
- (b) a readily accessible means for opening each door that separates a passenger compartment from another compartment that has emergency exits;
- (c) a means for securing in the open position any doorway or curtain separating the passenger compartment from other areas that need to be accessed to reach any required emergency exit from any passenger seat;
- (d) a placard on each internal door or adjacent to a curtain that is the means of access to a passenger emergency exit, to indicate that it shall be secured open during take-off and landing; and

- (e) a means for any member of the crew to unlock any door that is normally accessible to passengers and that can be locked by passengers.

CAT.IDE.A.220 First-aid kit

- (a) Aeroplanes shall be equipped with first-aid kits, in accordance with Table 1.

Table 1

Number of first-aid kits required	
Number of passenger seats installed	Number of first-aid kits required
0-100	1
101-200	2
201-300	3
301-400	4
401-500	5
501 or more	6

- (b) First-aid kits shall be:
 (1) readily accessible for use; and
 (2) kept up to date.

CAT.IDE.A.225 Emergency medical kit

- (a) Aeroplanes with an MOPSC of more than 30 shall be equipped with an emergency medical kit when any point on the planned route is more than 60 minutes flying time at normal cruising speed from an aerodrome at which qualified medical assistance could be expected to be available.
- (b) The commander shall ensure that drugs are only administered by appropriately qualified persons.
- (c) The emergency medical kit referred to in (a) shall be:
 (1) dust and moisture proof;
 (2) carried in a way that prevents unauthorised access; and
 (3) kept up to date.

CAT.IDE.A.230 First-aid oxygen

- (a) Pressurised aeroplanes operated at pressure altitudes above 25 000 ft, in the case of operations for which a cabin crew member is required, shall be equipped with a supply of undiluted oxygen for passengers who, for physiological reasons, might require oxygen following a cabin depressurisation.
- (b) The oxygen supply referred to in (a) shall be calculated using an average flow rate of at least 3 litres standard temperature pressure dry (STPD)/minute/person. This oxygen supply shall be sufficient for the remainder of the flight after cabin depressurisation when the cabin altitude exceeds 8 000 ft but does not exceed 15 000 ft, for at least 2 % of the passengers carried, but in no case for less than one person.
- (c) There shall be a sufficient number of dispensing units, but in no case less than two, with a means for cabin crew to use the supply.
- (d) The first-aid oxygen equipment shall be capable of generating a mass flow to each user of at least 4 litres STPD per minute.

CAT.IDE.A.235 Supplemental oxygen — pressurised aeroplanes

- (a) Pressurised aeroplanes operated at pressure altitudes above 10 000 ft shall be equipped with supplemental oxygen equipment that is capable of storing and dispensing the oxygen supplies in accordance with Table 1.

- (b) Pressurised aeroplanes operated at pressure altitudes above 25 000 ft shall be equipped with:
- (1) quick donning types of masks for flight crew members;
 - (2) sufficient spare outlets and masks or portable oxygen units with masks distributed evenly throughout the passenger compartment, to ensure immediate availability of oxygen for use by each required cabin crew member;
 - (3) an oxygen dispensing unit connected to oxygen supply terminals immediately available to each cabin crew member, additional crew member and occupants of passenger seats, wherever seated; and
 - (4) a device to provide a warning indication to the flight crew of any loss of pressurisation.
- (c) In the case of pressurised aeroplanes first issued with an individual CofA after 8 November 1998 and operated at pressure altitudes above 25 000 ft, or operated at pressure altitudes at, or below 25 000 ft under conditions that would not allow them to descend safely to 13 000 ft within four minutes, the individual oxygen dispensing units referred to in (b)(3) shall be automatically deployable.
- (d) The total number of dispensing units and outlets referred to in (b)(3) and (c) shall exceed the number of seats by at least 10 %. The extra units shall be evenly distributed throughout the passenger compartment.
- (e) Notwithstanding (a), the oxygen supply requirements for cabin crew member(s), additional crew member(s) and passenger(s), in the case of aeroplanes not certified to fly at altitudes above 25 000 ft, may be reduced to the entire flying time between 10 000 ft and 13 000 ft cabin pressure altitudes for all required cabin crew members and for at least 10 % of the passengers if, at all points along the route to be flown, the aeroplane is able to descend safely within four minutes to a cabin pressure altitude of 13 000 ft.
- (f) The required minimum supply in Table 1, row 1 item (b)(1) and row 2, shall cover the quantity of oxygen necessary for a constant rate of descent from the aeroplane's maximum certified operating altitude to 10 000 ft in 10 minutes and followed by 20 minutes at 10 000 ft.
- (g) The required minimum supply in Table 1, row 1 item 1(b)(2), shall cover the quantity of oxygen necessary for a constant rate of descent from the aeroplane's maximum certified operating altitude to 10 000 ft in 10 minutes followed by 110 minutes at 10 000 ft.
- (h) The required minimum supply in Table 1, row 3, shall cover the quantity of oxygen necessary for a constant rate of descent from the aeroplane's maximum certified operating altitude to 15 000 ft in 10 minutes.

Table 1

Oxygen minimum requirements for pressurised aeroplanes	
Supply for	Duration and cabin pressure altitude
1. Occupants of flight crew compartment seats on flight crew compartment duty	(a) The entire flying time when the cabin pressure altitude exceeds 13 000 ft. (b) The remainder of the flying time when the cabin pressure altitude exceeds 10 000 ft but does not exceed 13 000 ft, after the initial 30 minutes at these altitudes, but in no case less than: (1) 30 minutes' supply for aeroplanes certified to fly at altitudes not exceeding 25 000 ft; and (2) 2 hours' supply for aeroplanes certified to fly at altitudes of more than 25 000 ft.
2. Required cabin crew members	(a) The entire flying time when the cabin pressure altitude exceeds 13 000 ft, but not less than 30 minutes' supply. (b) The remainder of the flying time when the cabin pressure altitude exceeds 10 000 ft but does not exceed 13 000 ft, after the initial 30 minutes at these altitudes.
3. 100 % of passengers (*)	The entire flying time when the cabin pressure altitude exceeds 15 000 ft, but in no case less than 10 minutes' supply.
4. 30 % of passengers (*)	The entire flying time when the cabin pressure altitude exceeds 14 000 ft but does not exceed 15 000 ft.
5. 10 % of passengers (*)	The remainder of the flying time when the cabin pressure altitude exceeds 10 000 ft but does not exceed 14 000 ft, after the initial 30 minutes at these altitudes.
(*) Passenger numbers in Table 1 refer to passengers actually carried on board, including persons younger than 24 months.	

CAT.IDE.A.240 Supplemental oxygen — non-pressurised aeroplanes

Non-pressurised aeroplanes operated at pressure altitudes above 10 000 ft shall be equipped with supplemental oxygen equipment capable of storing and dispensing the oxygen supplies in accordance with Table 1.

Table 1

Oxygen minimum requirements for non-pressurised aeroplanes	
Supply for	Duration and cabin pressure altitude
1. Occupants of flight crew compartment seats on flight crew compartment duty and crew members assisting flight crew in their duties	The entire flying time at pressure altitudes above 10 000 ft.
2. Required cabin crew members	The entire flying time at pressure altitudes above 13 000 ft and for any period exceeding 30 minutes at pressure altitudes above 10 000 ft but not exceeding 13 000 ft.
3. Additional crew members and 100 % of passengers (*)	The entire flying time at pressure altitudes above 13 000 ft.
4. 10 % of passengers (*)	The entire flying time after 30 minutes at pressure altitudes above 10 000 ft but not exceeding 13 000 ft.
(*) Passenger numbers in Table 1 refer to passengers actually carried on board, including persons younger than 24 months.	

CAT.IDE.A.245 Crew protective breathing equipment

- (a) All pressurised aeroplanes and those unpressurised aeroplanes with an MCTOM of more than 5 700 kg or having an MOPSC of more than 19 seats shall be equipped with protective breathing equipment (PBE) to protect the eyes, nose and mouth and to provide for a period of at least 15 minutes:
 - (1) oxygen for each flight crew member on duty in the flight crew compartment;
 - (2) breathing gas for each required cabin crew member, adjacent to his/her assigned station; and
 - (3) breathing gas from a portable PBE for one member of the flight crew, adjacent to his/her assigned station, in the case of aeroplanes operated with a flight crew of more than one and no cabin crew member.
- (b) A PBE intended for flight crew use shall be installed in the flight crew compartment and be accessible for immediate use by each required flight crew member at his/her assigned station.
- (c) A PBE intended for cabin crew use shall be installed adjacent to each required cabin crew member station.
- (d) Aeroplanes shall be equipped with an additional portable PBE installed adjacent to the hand fire extinguisher referred to in CAT.IDE.A.250, or adjacent to the entrance of the cargo compartment, in case the hand fire extinguisher is installed in a cargo compartment.
- (e) A PBE while in use shall not prevent the use of the means of communication referred to in CAT.IDE.A.170, CAT.IDE.A.175, CAT.IDE.A.270 and CAT.IDE.A.330.

CAT.IDE.A.250 Hand fire extinguishers

- (a) Aeroplanes shall be equipped with at least one hand fire extinguisher in the flight crew compartment.
- (b) At least one hand fire extinguisher shall be located in, or readily accessible for use in, each galley not located on the main passenger compartment.
- (c) At least one hand fire extinguisher shall be available for use in each class A or class B cargo or baggage compartment and in each class E cargo compartment that is accessible to crew members in flight.
- (d) 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.

- (e) Aeroplanes shall be equipped with at least a number of hand fire extinguishers in accordance with Table 1, conveniently located to provide adequate availability for use in each passenger compartment.

Table 1

Number of hand fire extinguishers	
MOPSC	Number of extinguishers
7-30	1
31-60	2
61-200	3
201-300	4
301-400	5
401-500	6
501-600	7
601 or more	8

CAT.IDE.A.255 Crash axe and crowbar

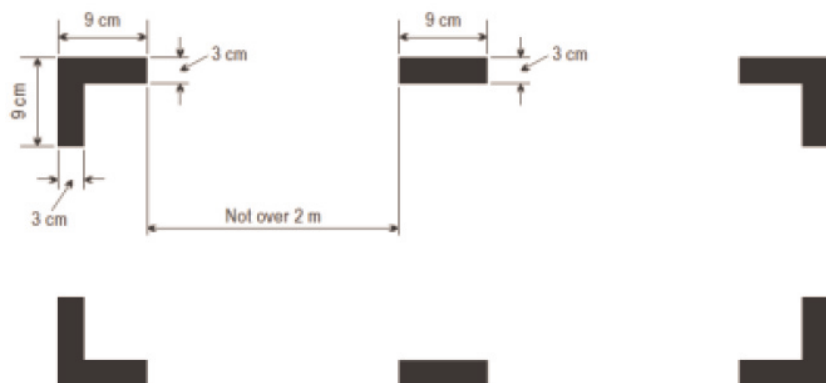
- (a) Aeroplanes with an MCTOM of more than 5 700 kg or with an MOPSC of more than nine shall be equipped with at least one crash axe or crowbar located in the flight crew compartment.
- (b) In the case of aeroplanes with an MOPSC of more than 200, an additional crash axe or crowbar shall be installed in or near the rearmost galley area.
- (c) Crash axes and crowbars located in the passenger compartment shall not be visible to passengers.

CAT.IDE.A.260 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



CAT.IDE.A.265 Means for emergency evacuation

- (a) Aeroplanes with passenger emergency exit sill heights of more than 1,83 m (6 ft) above the ground shall be equipped at each of those exits with a means to enable passengers and crew to reach the ground safely in an emergency.
- (b) Notwithstanding (a), such means are not required at overwing exits if the designated place on the aeroplane structure at which the escape route terminates is less than 1,83 m (6 ft) from the ground with the aeroplane on the ground, the landing gear extended, and the flaps in the take-off or landing position, whichever flap position is higher from the ground.

- (c) Aeroplanes required to have a separate emergency exit for the flight crew for which the lowest point of the emergency exit is more than 1,83 m (6 ft) above the ground shall have a means to assist all flight crew members in descending to reach the ground safely in an emergency.
- (d) The heights referred to in (a) and (c) shall be measured:
 - (1) with the landing gear extended; and
 - (2) after the collapse of, or failure to extend of, one or more legs of the landing gear, in the case of aeroplanes with a type certificate issued after 31 March 2000.

CAT.IDE.A.270 Megaphones

Aeroplanes with an MOPSC of more than 60 and carrying at least one passenger shall be equipped with the following quantities of portable battery-powered megaphones readily accessible for use by crew members during an emergency evacuation:

- (a) For each passenger deck:

Table 1

Number of megaphones	
Passenger seating configuration	Number of megaphones
61 to 99	1
100 or more	2

- (b) For aeroplanes with more than one passenger deck, in all cases when the total passenger seating configuration is more than 60, at least one megaphone.

CAT.IDE.A.275 Emergency lighting and marking

- (a) Aeroplanes with an MOPSC of more than nine shall be equipped with an emergency lighting system having an independent power supply to facilitate the evacuation of the aeroplane.
- (b) In the case of aeroplanes with an MOPSC of more than 19, the emergency lighting system, referred to in (a) shall include:
 - (1) sources of general cabin illumination;
 - (2) internal lighting in floor level emergency exit areas;
 - (3) illuminated emergency exit marking and locating signs;
 - (4) in the case of aeroplanes for which the application for the type certificate or equivalent was filed before 1 May 1972, when operated by night, exterior emergency lighting at all overwing exits and at exits where descent assist means are required;
 - (5) in the case of aeroplanes for which the application for the type certificate or equivalent was filed after 30 April 1972, when operated by night, exterior emergency lighting at all passenger emergency exits; and
 - (6) in the case of aeroplanes for which the type certificate was first issued on or after 31 December 1957, floor proximity emergency escape path marking system(s) in the passenger compartments.
- (c) In the case of aeroplanes with an MOPSC of 19 or less and type certified on the basis of the MCAA's airworthiness codes, the emergency lighting system, referred to in (a) shall include the equipment referred to in (b)(1) to (3).
- (d) In the case of aeroplanes with an MOPSC of 19 or less that are not certified on the basis of the MCAA's airworthiness codes, the emergency lighting system, referred to in (a) shall include the equipment referred to in (b)(1).
- (e) Aeroplanes with an MOPSC of nine or less, operated at night, shall be equipped with a source of general cabin illumination to facilitate the evacuation of the aeroplane.

CAT.IDE.A.280 Emergency locator transmitter (ELT)

- (a) Aeroplanes with an MOPSC of more than 19 shall be equipped with at least:
 - (1) two ELTs, one of which shall be automatic, in the case of aeroplanes first issued with an individual CofA after 1 July 2008; or
 - (2) one automatic ELT or two ELTs of any type, in the case of aeroplanes first issued with an individual CofA on or before 1 July 2008.
- (b) Aeroplanes with an MOPSC of 19 or less shall be equipped with at least:
 - (1) one automatic ELT, in the case of aeroplanes first issued with an individual CofA after 1 July 2008; or
 - (2) one ELT of any type, in the case of aeroplanes first issued with an individual CofA on or before 1 July 2008.
- (c) An ELT of any type shall be capable of transmitting simultaneously on 121,5 MHz and 406 MHz.

CAT.IDE.A.285 Flight over water

- (a) The following aeroplanes shall be equipped with a life-jacket for each person on board or equivalent 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:
 - (1) landplanes operated over water at a distance of more than 50 NM from the shore or taking off or landing at an aerodrome where the take-off or approach path is so disposed over water that there would be a likelihood of a ditching; and
 - (2) seaplanes operated 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) Seaplanes operated over water shall be equipped with:
 - (1) a sea anchor and other equipment necessary to facilitate mooring, anchoring or manoeuvring the seaplane on water, appropriate to its size, weight and handling characteristics; and
 - (2) equipment for making the sound signals as prescribed in the International Regulations for Preventing Collisions at Sea, where applicable.
- (d) Aeroplanes operated over water at a distance away from land suitable for making an emergency landing, greater than that corresponding to:
 - (1) 120 minutes at cruising speed or 400 NM, whichever is the lesser, in the case of aeroplanes capable of continuing the flight to an aerodrome with the critical engine(s) becoming inoperative at any point along the route or planned diversions; or
 - (2) for all other aeroplanes, 30 minutes at cruising speed or 100 NM, whichever is the lesser, shall be equipped with the equipment specified in (e).
- (e) Aeroplanes complying with (d) shall carry the following equipment:
 - (1) life-rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in an emergency, and being of sufficient size to accommodate all the survivors in the event of a loss of one raft of the largest rated capacity;
 - (2) a survivor locator light in each life-raft;
 - (3) life-saving equipment to provide the means for sustaining life, as appropriate for the flight to be undertaken; and
 - (4) at least two survival ELTs (ELT(S)).

CAT.IDE.A.305 Survival equipment

- (a) Aeroplanes operated over areas in which search and rescue would be especially difficult shall be equipped with:
 - (1) signalling equipment to make the distress signals;
 - (2) at least one ELT(S); and
 - (3) additional survival equipment for the route to be flown taking account of the number of persons on board.

- (b) The additional survival equipment specified in (a)(3) does not need to be carried when the aeroplane:
- (1) remains within a distance from an area where search and rescue is not especially difficult corresponding to:
 - (i) 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
 - (ii) 30 minutes at cruising speed for all other aeroplanes;
 - (2) remains within a distance no greater than that corresponding to 90 minutes at cruising speed from an area suitable for making an emergency landing, for aeroplanes certified in accordance with the applicable airworthiness standard.

CAT.IDE.A.325 Headset

- (a) Aeroplanes shall be equipped with a headset with a boom or throat microphone or equivalent for each flight crew member at their assigned station in the flight crew compartment.
- (b) Aeroplanes operated under IFR or at night shall be equipped with a transmit button on the manual pitch and roll control for each required flight crew member.

CAT.IDE.A.330 Radio communication equipment

- (a) Aeroplanes shall be equipped with the radio communication equipment required by the applicable airspace requirements.
- (b) The radio communication equipment shall provide for communication on the aeronautical emergency frequency 121.5 MHz.

CAT.IDE.A.335 Audio selector panel

Aeroplanes operated under IFR shall be equipped with an audio selector panel operable from each required flight crew member station.

CAT.IDE.A.340 Radio equipment for operations under VFR over routes navigated by reference to visual landmarks

Aeroplanes operated under VFR over routes navigated by reference to visual landmarks shall be equipped with radio communication equipment necessary under normal radio propagation conditions to fulfil the following:

- (a) communicate with appropriate ground stations;
- (b) communicate with appropriate ATC stations from any point in controlled airspace within which flights are intended; and
- (c) receive meteorological information.

CAT.IDE.A.345 Communication and navigation equipment for operations under IFR or under VFR over routes not navigated by reference to visual landmarks

- (a) Aeroplanes operated under IFR or under VFR over routes that cannot be navigated by reference to visual landmarks shall be equipped with radio communication and navigation equipment in accordance with the applicable airspace requirements.
- (b) Radio communication equipment shall include at least two independent radio communication systems necessary under normal operating conditions to communicate with an appropriate ground station from any point on the route, including diversions.
- (c) Notwithstanding (b), aeroplanes operated for short haul operations in the North Atlantic minimum navigation performance specifications (NAT MNPS) airspace and not crossing the North Atlantic shall be equipped with at least one long range communication system, in case alternative communication procedures are published for the airspace concerned.

- (d) 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 the flight plan.
- (e) 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 aerodrome.

CAT.IDE.A.350 Transponder

Aeroplanes shall be equipped with a pressure altitude reporting secondary surveillance radar (SSR) transponder and any other SSR transponder capability required for the route being flown.

CAT.IDE.A.355 Electronic navigation data management

- (a) The operator shall only use electronic navigation data products that support a navigation application meeting standards of integrity that are adequate for the intended use of the data.
- (b) When the electronic navigation data products support a navigation application needed for an operation for which Annex V (Part-SPA) requires an approval, the operator shall demonstrate to MCAA that the process applied and the delivered products meet standards of integrity that are adequate for the intended use of the data.
- (c) The operator shall continuously monitor the integrity of both the process and the products, either directly or by monitoring the compliance of third party providers.
- (d) The operator shall ensure the timely distribution and insertion of current and unaltered electronic navigation data to all aeroplanes that require it.

SECTION 2 ***Helicopters***

CAT.IDE.H.100 Instruments and equipment — general

- (a) Instruments and equipment required by this Subpart shall be approved in accordance with Regulations, except for the following items:
 - (1) Spare fuses;
 - (2) Independent portable lights;
 - (3) An accurate time piece;
 - (4) Chart holder;
 - (5) First-aid kit;
 - (6) Megaphones;
 - (7) Survival and signalling equipment;
 - (8) Sea anchors and equipment for mooring; and
 - (9) Child restraint devices.
- (b) Instruments and equipment not required by this Subpart that do not need to be approved in accordance with Regulations but are 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 this regulation or CAT.IDE.H.330, CAT.IDE.H.335, CAT.IDE.H.340 and CAT.IDE.H.345; and
 - (2) the instruments and equipment shall not affect the airworthiness of the helicopter, even in the case of failures or malfunction.
- (c) If equipment is to be used by one flight crew member at his/her station during flight, it shall be readily operable from that station. When a single item of equipment is required to be operated by more than one flight crew member it shall be installed so that the equipment is readily operable from any station at which the equipment is required to be operated.

- (d) Those instruments that are used by any flight crew member shall be so arranged as to permit the flight crew member to see the indications readily from his/her station, with the minimum practicable deviation from the position and line of vision that he/she normally assumes when looking forward along the flight path.
- (e) All required emergency equipment shall be easily accessible for immediate use.

CAT.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 operator's MEL; or
- (b) the operator is approved by MCAA to operate the helicopter within the constraints of the MMEL.

CAT.IDE.H.115 Operating lights

- (a) Helicopters operated under VFR by day shall be equipped with an anti-collision light system.
- (b) Helicopters operated at night or under IFR shall, in addition to (a), be equipped with:
 - (1) 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;
 - (2) lighting supplied from the helicopter's electrical system to provide illumination in all passenger compartments;
 - (3) an independent portable light for each required crew member readily accessible to crew members when seated at their designated stations;
 - (4) navigation/position lights;
 - (5) two landing lights of which at least one is adjustable in flight so as to illuminate the ground in front of and below the helicopter and the ground on either side of the helicopter; and
 - (6) lights to conform with the International Regulations for Preventing Collisions at Sea if the helicopter is amphibious.

CAT.IDE.H.125 Operations under VFR by day — flight and navigational instruments and associated equipment

- (a) Helicopters operated under VFR by day shall be equipped with the following equipment, available at the pilot's station:
 - (1) A means of measuring and displaying:
 - (i) Magnetic heading;
 - (ii) Time in hours, minutes, and seconds;
 - (iii) Pressure altitude;
 - (iv) Indicated airspeed;
 - (v) Vertical speed;
 - (vi) Slip; and
 - (vii) Outside air temperature.
 - (2) A means of indicating when the supply of power to the required flight instruments is not adequate.
- (b) Whenever two pilots are required for the operation, an additional separate means of displaying the following shall be available for the second pilot:
 - (1) Pressure altitude;
 - (2) Indicated airspeed;
 - (3) Vertical speed; and
 - (4) Slip.
- (c) Helicopters with an MCTOM of more than 3 175 kg or any helicopter operating over water when out of sight of land or when the visibility is less than 1 500 m, shall be equipped with a means of measuring and displaying:
 - (1) Attitude; and
 - (2) Heading.

- (d) A means for preventing malfunction of the airspeed indicating systems due to condensation or icing shall be available for helicopters with an MCTOM of more than 3 175 kg or an MOPSC of more than nine.

CAT.IDE.H.130 Operations under IFR or at night — flight and navigational instruments and associated equipment

Helicopters operated under VFR at night or under IFR shall be equipped with the following equipment, available at the pilot's station:

- (a) A means of measuring and displaying:
- (1) Magnetic heading;
 - (2) Time in hours, minutes and seconds;
 - (3) Indicated airspeed;
 - (4) Vertical speed;
 - (5) Slip;
 - (6) Attitude;
 - (7) Stabilised heading; and
 - (8) Outside air temperature.
- (b) Two means of measuring and displaying pressure altitude. For single-pilot operations under VFR at night one pressure altimeter may be substituted by a radio altimeter.
- (c) A means of indicating when the supply of power to the required flight instruments is not adequate.
- (d) A means of preventing malfunction of the airspeed indicating systems required in (a)(3) and (h)(2) due to either condensation or icing.
- (e) A means of annunciating to the flight crew the failure of the means required in (d) for helicopters:
- (1) issued with an individual CofA on or after 1 August 1999; or
 - (2) issued with an individual CofA before 1 August 1999 with an MCTOM of more than 3 175 kg, and with an MOPSC of more than nine.
- (f) A standby means of measuring and displaying attitude that:
- (1) is powered continuously during normal operation and, in the event of a total failure of the normal electrical generating system, is powered from a source independent of the normal electrical generating system;
 - (2) operates independently of any other means of measuring and displaying attitude;
 - (3) is capable of being used from either pilot's station;
 - (4) is operative automatically after total failure of the normal electrical generating system;
 - (5) provides reliable operation for a minimum of 30 minutes or the time required to fly to a suitable alternate landing site when operating over hostile terrain or offshore, whichever is greater, after total failure of the normal electrical generating system, taking into account other loads on the emergency power supply and operational procedures;
 - (6) is appropriately illuminated during all phases of operation; and
 - (7) is associated with a means to alert the flight crew when operating under its dedicated power supply, including when operated by emergency power.
- (g) An alternate source of static pressure for the means of measuring altitude, airspeed and vertical speed.
- (h) Whenever two pilots are required for the operation, a separate means for displaying for the second pilot:
- (1) Pressure altitude;
 - (2) Indicated airspeed;
 - (3) Vertical speed;
 - (4) Slip;
 - (5) Attitude; and
 - (6) Stabilised heading.
- (i) For IFR operations, a chart holder in an easily readable position that can be illuminated for night operations.

CAT.IDE.H.135 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.

CAT.IDE.H.145 Radio altimeters

- (a) Helicopters on flights over water shall be equipped with a radio altimeter capable of emitting an audio warning below a pre-set height and a visual warning at a height selectable by the pilot, when operating:
- (1) out of sight of the land;
 - (2) in a visibility of less than 1 500 m;
 - (3) at night; or
 - (4) at a distance from land corresponding to more than three minutes at normal cruising speed.

CAT.IDE.H.160 Airborne weather detecting equipment

Helicopters with an MOPSC of more than nine and operated under IFR or at night shall be equipped with airborne weather detecting equipment when current weather reports indicate that thunderstorms or other potentially hazardous weather conditions, regarded as detectable with airborne weather detecting equipment, may be expected to exist along the route to be flown.

CAT.IDE.H.165 Additional equipment for operations in icing conditions at night

- (a) Helicopters operated in expected or actual icing conditions at night shall be equipped with a means to illuminate or detect the formation of ice.
- (b) The means to illuminate the formation of ice shall not cause glare or reflection that would handicap crew members in the performance of their duties.

CAT.IDE.H.170 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.

CAT.IDE.H.175 Crew member interphone system

Helicopters shall be equipped with a crew member interphone system when carrying a crew member other than a flight crew member.

CAT.IDE.H.180 Public address system

- (a) Helicopters with an MOPSC of more than nine shall be equipped with a public address system, with the exception of (b).
- (b) Notwithstanding (a) helicopters with an MOPSC of more than nine and less than 20 are exempted from having a public address system, if:
- (1) the helicopter is designed without a bulkhead between pilot and passengers; and
 - (2) the operator is able to demonstrate that when in flight, the pilot's voice is audible and intelligible at all passengers' seats.

CAT.IDE.H.185 Cockpit voice recorder

- (a) The following helicopter types shall be equipped with a cockpit voice recorder (CVR):
- (1) all helicopters with an MCTOM of more than 7 000 kg; and
 - (2) helicopters with an MCTOM of more than 3 175 kg and first issued with an individual CofA on or after 1 January 1987.
- (b) The CVR shall be capable of retaining the data recorded during at least:
- (1) the preceding two hours for helicopters referred to in (a)(1) and (a)(2), when first issued with an individual CofA on or after 1 January 2016;

- (2) the preceding one hour for helicopters referred to in (a)(1), when first issued with an individual CofA on or after 1 August 1999 and before 1 January 2016;
 - (3) the preceding 30 minutes for helicopters referred to in (a)(1), when first issued with an individual CofA before 1 August 1999; or
 - (4) the preceding 30 minutes for helicopters referred to in (a)(2), when first issued with an individual CofA before 1 January 2016.
- (c) The CVR shall record with reference to a timescale:
- (1) voice communications transmitted from or received in the flight crew compartment by radio;
 - (2) flight crew members' voice communications using the interphone system and the public address system, if installed;
 - (3) the aural environment of the flight crew compartment, including without interruption:
 - (i) for helicopters first issued with an individual CofA on or after 1 August 1999, the audio signals received from each crew microphone;
 - (ii) for helicopters first issued with an individual CofA before 1 August 1999, the audio signals received from each crew microphone, where practicable;
 - (4) voice or audio signals identifying navigation or approach aids introduced into a headset or speaker.
- (d) The CVR shall start to record prior to the helicopter moving under its own power and shall continue to record until the termination of the flight when the helicopter is no longer capable of moving under its own power.
- (e) In addition to (d), for helicopters referred to in (a)(2) issued with an individual CofA on or after 1 August 1999:
- (1) the CVR shall start automatically to record prior to the helicopter moving under its own power and continue to record until the termination of the flight when the helicopter is no longer capable of moving under its own power; and
 - (2) depending on the availability of electrical power, the CVR shall start to record as early as possible during the cockpit checks prior to engine start at the beginning of the flight until the cockpit checks immediately following engine shutdown at the end of the flight.
- (f) The CVR shall have a device to assist in locating it in water.

CAT.IDE.H.190 Flight data recorder

- (a) The following helicopters shall be equipped with an FDR that uses a digital method of recording and storing data and for which a method of readily retrieving that data from the storage medium is available:
- (1) helicopters with an MCTOM of more than 3 175 kg and first issued with an individual CofA on or after 1 August 1999;
 - (2) helicopters with an MCTOM of more than 7 000 kg, or an MOPSC of more than nine, and first issued with an individual CofA on or after 1 January 1989 but before 1 August 1999.
- (b) The FDR shall record the parameters required to determine accurately the:
- (1) flight path, speed, attitude, engine power, operation and configuration and be capable of retaining the data recorded during at least the preceding 10 hours, for helicopters referred to in (a)(1) and first issued with an individual CofA on or after 1 January 2016;
 - (2) flight path, speed, attitude, engine power and operation and be capable of retaining the data recorded during at least the preceding eight hours, for helicopters referred to in (a)(1) and first issued with an individual CofA before 1 January 2016;
 - (3) flight path, speed, attitude, engine power and operation and be capable of retaining the data recorded during at least the preceding five hours, for helicopters referred to in (a)(2).
- (c) Data shall be obtained from helicopter sources that enable accurate correlation with information displayed to the flight crew.
- (d) The FDR shall automatically start to record the data prior to the helicopter being capable of moving under its own power and shall stop automatically after the helicopter is incapable of moving under its own power.
- (e) The FDR shall have a device to assist in locating it in water.

CAT.IDE.H.195 Data link recording

- (a) Helicopters first issued with an individual CofA on or after 8 April 2014 that have the capability to operate data link communications and are required to be equipped with a CVR, shall record on a recorder, where applicable:
- (1) data link communication messages related to ATS communications to and from the helicopter, including messages applying to the following applications:
 - (i) data link initiation;
 - (ii) controller-pilot communication;
 - (iii) addressed surveillance;
 - (iv) flight information;
 - (v) as far as is practicable, given the architecture of the system, aircraft broadcast surveillance;
 - (vi) as far as is practicable, given the architecture of the system, aircraft operational control data;
 - (vii) as far as is practicable, given the architecture of the system, graphics;
 - (2) information that enables correlation to any associated records related to data link communications and stored separately from the helicopter; and
 - (3) information on the time and priority of data link communications messages, taking into account the system's architecture.
- (b) The recorder shall use a digital method of recording and storing data and information and a method of readily retrieving that data shall be available. The recording method shall allow the data to match the data recorded on the ground.
- (c) The recorder shall be capable of retaining data recorded for at least the same duration as set out for CVRs in CAT.IDE.H.185.
- (d) The recorder shall have a device to assist in locating it in water.
- (e) The requirements applicable to the start and stop logic of the recorder are the same as the requirements applicable to the start and stop logic of the CVR contained in CAT.IDE.H.185 (d) and (e).

CAT.IDE.H.200 Flight data and cockpit voice combination recorder

Compliance with CVR and FDR requirements may be achieved by the carriage of one combination recorder.

CAT.IDE.H.205 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 on or after 1 August 1999, a safety belt with upper torso restraint system for use on each passenger seat for each passenger aged 24 months or more;
 - (4) a child restraint device (CRD) for each person on board younger than 24 months;
 - (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;
 - (6) a seat belt with upper torso restraint system on each seat for the minimum required cabin crew.
- (b) A seat belt with upper torso restraint system shall:
- (1) have a single point release; and
 - (2) on flight crew seats and on the seats for the minimum required cabin crew include two shoulder straps and a seat belt that may be used independently.

CAT.IDE.H.210 Fasten seat belt and no smoking signs

Helicopters in which not all passenger seats are visible from the flight crew seat(s) shall be equipped with a means of indicating to all passengers and cabin crew when seat belts shall be fastened and when smoking is not allowed.

CAT.IDE.H.220 First-aid kits

- (a) Helicopters shall be equipped with at least one first-aid kit.
- (b) First-aid kits shall be:
 - (1) readily accessible for use;
 - (2) kept up to date.

CAT.IDE.H.240 Supplemental oxygen — non-pressurised helicopters

Non-pressurised helicopters operated at pressure altitudes above 10 000 ft shall be equipped with supplemental oxygen equipment capable of storing and dispensing the oxygen supplies in accordance with the following tables.

Table 1

Oxygen minimum requirements for complex non-pressurised helicopters	
Supply for	Duration and cabin pressure altitude
1. Occupants of flight crew compartment seats on flight crew compartment duty and crew members assisting flight crew in their duties	The entire flying time at pressure altitudes above 10 000 ft.
2. Required cabin crew members	The entire flying time at pressure altitudes above 13 000 ft and for any period exceeding 30 minutes at pressure altitudes above 10 000 ft but not exceeding 13 000 ft.
3. Additional crew members and 100 % of passengers (*)	The entire flying time at pressure altitudes above 13 000 ft.
4. 10 % of passengers (*)	The entire flying time after 30 minutes at pressure altitudes above 10 000 ft but not exceeding 13 000 ft.
(*) Passenger numbers in Table 1 refer to passengers actually carried on board including persons younger than 24 months.	

Table 2

Oxygen minimum requirements for other-than-complex non-pressurised helicopters	
Supply for	Duration and cabin pressure altitude
1. Occupants of flight crew compartment seats on flight crew compartment duty, crew members assisting flight crew in their duties, and required cabin crew members	The entire flying time at pressure altitudes above 13 000 ft and for any period exceeding 30 minutes at pressure altitudes above 10 000 ft but not exceeding 13 000 ft.
2. Additional crew members and 100 % of passengers (*)	The entire flying time at pressure altitudes above 13 000 ft.
3. 10 % of passengers (*)	The entire flying time after 30 minutes at pressure altitudes above 10 000 ft but not exceeding 13 000 ft.
(*) Passenger numbers in Table 2 refer to passengers actually carried on board including persons younger than 24 months.	

CAT.IDE.H.250 Hand fire extinguishers

- (a) Helicopters shall be equipped with at least one hand fire extinguisher in the flight crew compartment.
- (b) At least one hand fire extinguisher shall be located in, or readily accessible for use in, each galley not located on the main passenger compartment.
- (c) At least one hand fire extinguisher shall be available for use in each cargo compartment that is accessible to crew members in flight.
- (d) 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.
- (e) The helicopter shall be equipped with at least a number of hand fire extinguishers in accordance with Table 1, conveniently located to provide adequate availability for use in each passenger compartment.

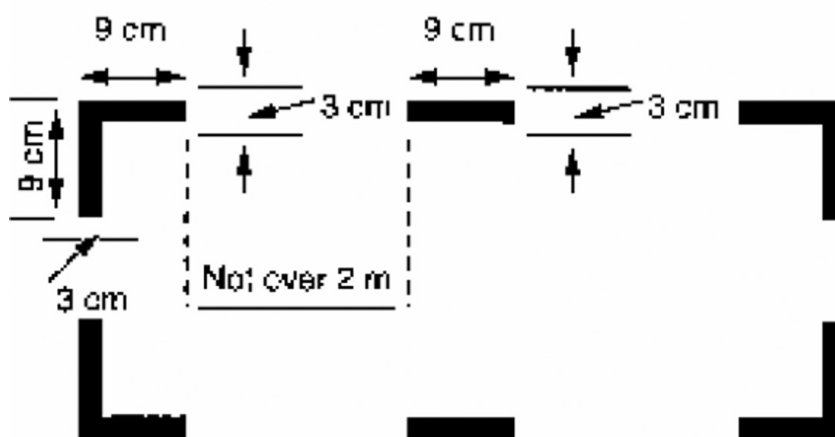
Table 1

Number of hand fire extinguishers	
MOPSC	Number of extinguishers
7-30	1
31-60	2
61-200	3

CAT.IDE.H.260 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



CAT.IDE.H.270 Megaphones

Helicopters with an MOPSC of more than 19 shall be equipped with one portable battery-powered megaphone readily accessible for use by crew members during an emergency evacuation.

CAT.IDE.H.275 Emergency lighting and marking

- (a) Helicopters with an MOPSC of more than 19 shall be equipped with:
 - (1) an emergency lighting system having an independent power supply to provide a source of general cabin illumination to facilitate the evacuation of the helicopter; and
 - (2) emergency exit marking and locating signs visible in daylight or in the dark.
- (b) Helicopters shall be equipped with emergency exit markings visible in daylight or in the dark when operated:
 - (1) in performance class 1 or 2 on a flight over water at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed;
 - (2) in performance class 3 on a flight over water at a distance corresponding to more than three minutes flying time at normal cruising speed.

CAT.IDE.H.280 Emergency locator transmitter (ELT)

- (a) Helicopters shall be equipped with at least one automatic ELT.
- (b) Helicopters operating in performance class 1 or 2 used in offshore operations on a flight over water in a hostile environment and at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed shall be equipped with an automatically deployable ELT (ELT (AD)).
- (c) An ELT of any type shall be capable of transmitting simultaneously on 121.5 MHz and 406 MHz.

CAT.IDE.H.290 Life-jackets

- (a) Helicopters shall be equipped with a life-jacket for each person on board or equivalent 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, when operated in:
 - (1) performance class 1 or 2 on a flight over water at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed;
 - (2) performance class 3 on a flight over water beyond autorotational distance from land;
 - (3) performance class 2 or 3 when taking off or landing at an aerodrome or 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.

CAT.IDE.H.295 Crew survival suits

Each crew member shall wear a survival suit when operating:

- (a) in performance class 1 or 2 on a flight over water in support of offshore operations, at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed, when the weather report or forecasts available to the commander indicate that the sea temperature will be less than plus 10 °C during the flight, or when the estimated rescue time exceeds the estimated survival time;
- (b) in performance class 3 on a flight over water beyond autorotational distance or safe forced landing distance from land, when the weather report or forecasts available to the commander indicate that the sea temperature will be less than plus 10 °C during the flight.

CAT.IDE.H.300 Life-rafts, survival ELTs and survival equipment on extended overwater flights

Helicopters operated:

- (a) in performance class 1 or 2 on a flight over water at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed;
- (b) in performance class 3 on a flight over water at a distance corresponding to more than three minutes flying time at normal cruising speed, shall be equipped with:
 - (1) in the case of a helicopter carrying less than 12 persons, at least one life-raft with a rated capacity of not less than the maximum number of persons on board, stowed so as to facilitate its ready use in an emergency;
 - (2) in the case of a helicopter carrying more than 11 persons, at least two life-rafts, stowed so as to facilitate their ready use in an emergency, sufficient together to accommodate all persons capable of being carried on board and, if one is lost, the remaining life-raft(s) having, the overload capacity sufficient to accommodate all persons on the helicopter;
 - (3) at least one survival ELT (ELT(S)) for each required life-raft; and
 - (4) life-saving equipment, including means of sustaining life, as appropriate to the flight to be undertaken.

CAT.IDE.H.305 Survival equipment

Helicopters operated over areas in which search and rescue would be especially difficult shall be equipped with:

- (a) signalling equipment to make distress signals;
- (b) at least one ELT(S); and
- (c) additional survival equipment for the route to be flown taking account of the number of persons on board.

CAT.IDE.H.310 Additional requirements for helicopters conducting offshore operations in a hostile sea area

Helicopters operated in offshore operations in a hostile sea area, at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed, shall comply with the following:

- (a) When the weather report or forecasts available to the commander indicate that the sea temperature will be less than plus 10 °C during the flight, or when the estimated rescue time exceeds the calculated survival time, or the flight is planned to be conducted at night, all persons on board shall wear a survival suit.
- (b) All life-rafts carried in accordance with CAT.IDE.H.300 shall be installed so as to be usable in the sea conditions in which the helicopter's ditching, flotation and trim characteristics were evaluated in order to comply with the ditching requirements for certification.
- (c) The helicopter shall be equipped with an emergency lighting system with an independent power supply to provide a source of general cabin illumination to facilitate the evacuation of the helicopter.
- (d) All emergency exits, including crew emergency exits, and the means for opening them shall be conspicuously marked for the guidance of occupants using the exits in daylight or in the dark. Such markings shall be designed to remain visible if the helicopter is capsized and the cabin is submerged.
- (e) All non-jettisonable doors that are designated as ditching emergency exits shall have a means of securing them in the open position so that they do not interfere with occupants' egress in all sea conditions up to the maximum required to be evaluated for ditching and flotation.
- (f) All doors, windows or other openings in the passenger compartment assessed as suitable for the purpose of underwater escape shall be equipped so as to be operable in an emergency.
- (g) Life-jackets shall be worn at all times, unless the passenger or crew member is wearing an integrated survival suit that meets the combined requirement of the survival suit and life-jacket.

CAT.IDE.H.315 Helicopters certified for operating on water — miscellaneous equipment

Helicopters certified for operating on water shall be equipped with:

- (a) a sea anchor and other equipment necessary to facilitate mooring, anchoring or manoeuvring the helicopter on water, appropriate to its size, weight and handling characteristics; and
- (b) equipment for making the sound signals prescribed in the International Regulations for Preventing Collisions at Sea, where applicable.

CAT.IDE.H.320 All helicopters on flights over water — ditching

- (a) Helicopters shall be designed for landing on water or certified for ditching in accordance with the relevant airworthiness code when operated in performance class 1 or 2 on a flight over water in a hostile environment at a distance from land corresponding to more than 10 minutes flying time at normal cruise speed.
- (b) Helicopters shall be designed for landing on water or certified for ditching in accordance the relevant airworthiness code or fitted with emergency flotation equipment when operated in:
 - (1) performance class 1 or 2 on a flight over water in a non-hostile environment at a distance from land corresponding to more than 10 minutes flying time at normal cruise speed;
 - (2) performance class 2, when taking off or landing over water, except in the case of helicopter emergency medical services (HEMS) operations, where for the purpose of minimising exposure, the landing or take-off at a HEMS operating site located in a congested environment is conducted over water;
 - (3) performance class 3 on a flight over water beyond safe forced landing distance from land.

CAT.IDE.H.325 Headset

Whenever a radio communication and/or radio navigation system is required, helicopters shall be equipped with a headset with boom microphone or equivalent and a transmit button on the flight controls for each required pilot and/or crew member at his/her assigned station.

CAT.IDE.H.330 Radio communication equipment

- (a) Helicopters shall be equipped with the radio communication equipment required by the applicable airspace requirements.
- (b) The radio communication equipment shall provide for communication on the aeronautical emergency frequency 121.5 MHz.

CAT.IDE.H.335 Audio selector panel

Helicopters operated under IFR shall be equipped with an audio selector panel operable from each required flight crew member station.

CAT.IDE.H.340 Radio equipment for operations under VFR over routes navigated by reference to visual landmarks

Helicopters operated under VFR over routes that can be navigated by reference to visual landmarks shall be equipped with radio communication equipment necessary under normal radio propagation conditions to fulfil the following:

- (a) communicate with appropriate ground stations;
- (b) communicate with appropriate ATC stations from any point in controlled airspace within which flights are intended; and
- (c) receive meteorological information.

CAT.IDE.H.345 Communication and navigation equipment for operations under IFR or under VFR over routes not navigated by reference to visual landmarks

- (a) Helicopters operated under IFR or under VFR over routes that cannot be navigated by reference to visual landmarks shall be equipped with radio communication and navigation equipment in accordance with the applicable airspace requirements.
- (b) Radio communication equipment shall include at least two independent radio communication systems necessary under normal operating conditions to communicate with an appropriate ground station from any point on the route, including diversions.
- (c) 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 the flight plan.
- (d) Helicopters 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.

CAT.IDE.H.350 Transponder

Helicopters shall be equipped with a pressure altitude reporting secondary surveillance radar (SSR) transponder and any other SSR transponder capability required for the route being flown.

SECTION 3
Sailplanes

CAT.IDE.S.100 Instruments and equipment — general

- (a) Instruments and equipment required by this Subpart shall be approved in accordance with MCAR 2, if they are:
- (1) used by the flight crew to control the flight path;
 - (2) used to comply with CAT.IDE.S.140;
 - (3) used to comply with CAT.IDE.S.145; or
 - (4) installed in the sailplane.
- (b) The following items, when required by this Subpart, do not need an equipment approval:
- (1) independent portable light;
 - (2) accurate time piece; and
 - (3) survival and signalling equipment.
- (c) Instruments and equipment not required by this Subpart as well as any other equipment that is not required by other Annexes, but is carried on a flight, shall comply with the following:
- (1) the information provided by these instruments or equipment shall not be used by the flight crew to comply with Annex I to MCAR Air Operations; and
 - (2) the instruments and equipment shall not affect the airworthiness of the sailplane, even in the case of failures or malfunction.
- (d) Instruments and equipment shall be readily operable or accessible from the station where the flight crew member that needs to use it is seated.
- (e) All required emergency equipment shall be easily accessible for immediate use.

CAT.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 the sailplane is operated in accordance with the minimum equipment list (MEL).

CAT.IDE.S.110 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.

CAT.IDE.S.115 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.

CAT.IDE.S.120 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.

CAT.IDE.S.125 Supplemental oxygen

Sailplanes operated at pressure altitudes above 10 000 ft shall be equipped with 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.

CAT.IDE.S.130 Flight over water

The commander 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, that shall be worn or 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 a crew member 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 land; 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.

CAT.IDE.S.135 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.

CAT.IDE.S.140 Radio communication equipment

- (a) When required by the airspace being flown, 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.

CAT.IDE.S.145 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.

CAT.IDE.S.150 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

CAT.IDE.B.100 Instruments and equipment — general

- (a) Instruments and equipment required by this Subpart shall be approved in accordance with MCAR 21, if they are:
- (1) used by the flight crew to determine the flight path;
 - (2) used to comply with CAT.IDE.B.155; or
 - (3) installed in the balloon.
- (b) The following items, when required by this Subpart, do not need an equipment approval:
- (1) independent portable light;
 - (2) accurate time piece;
 - (3) first-aid kit;
 - (4) survival and signalling equipment;
 - (5) alternative source of ignition;
 - (6) fire blanket or fire resistant cover;
 - (7) drop line; and
 - (8) knife.
- (c) Instruments and equipment not required by this Subpart as well as any other equipment that is not required by other Annexes, but is carried on a flight, shall comply with the following:
- (1) the information provided by these instruments or equipment shall not be used by the flight crew to comply with Annex I to MCAR Air Operations; and
 - (2) the instruments and equipment shall not affect the airworthiness of the balloon, even in the case of failures or malfunction.
- (d) Instruments and equipment shall be readily operable or accessible from the station where the flight crew member that needs to use it is assigned.
- (e) All required emergency equipment shall be easily accessible for immediate use.

CAT.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 the balloon is operated in accordance with the minimum equipment list (MEL).

CAT.IDE.B.110 Operating lights

Balloons operated at night shall be equipped with:

- (a) anti-collision lights;
- (b) a means to provide adequate illumination for all instruments and equipment essential to the safe operation of the balloon; and
- (c) an independent portable light.

CAT.IDE.B.115 Operations under VFR — flight and navigational instruments and associated equipment

Balloons operated under VFR 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, if required by the AFM;
 - (3) pressure altitude, if required by the AFM, if required by air space requirements or when altitude needs to be controlled for the use of oxygen; and
 - (4) except for gas balloons, the pressure of each burning gas supply line.

CAT.IDE.B.120 Restraint systems

Balloons with a separate compartment for the commander shall be equipped with a restraint system for the commander.

CAT.IDE.B.125 First-aid kit

- (a) Balloons shall be equipped with a first-aid kit.
- (b) An additional first-aid kit shall be carried in the retrieve vehicle.
- (c) The first-aid kit shall be:
 - (1) readily accessible for use; and
 - (2) kept up-to-date.

CAT.IDE.B.130 Supplemental oxygen

Balloons operated at pressure altitudes above 10 000 ft shall be equipped with 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.

CAT.IDE.B.135 Hand fire extinguishers

Hot-air balloons shall be equipped with at least one hand fire extinguisher as required by the applicable airworthiness code.

CAT.IDE.B.140 Flight over water

The commander 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, that shall be worn or 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 a crew member or a passenger, capable of transmitting simultaneously on 121,5 MHz and 406 MHz; and
- (c) equipment for making distress signals.

CAT.IDE.B.145 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.

CAT.IDE.B.150 Miscellaneous equipment

- (a) Balloons shall be equipped with protective gloves for each crew member.
- (b) Hot-air balloons shall be equipped with:
 - (1) an alternative source of ignition;
 - (2) a means of measuring and indicating fuel quantity;
 - (3) a fire blanket or fire resistant cover; and
 - (4) a drop line of at least 25 m in length.
- (c) Gas balloons shall be equipped with:
 - (1) a knife; and
 - (2) a drop line of at least 20 m in length made of natural fibre or electrostatic conductive material.

CAT.IDE.B.155 Radio communication equipment

- (a) When required by airspace requirements, balloons shall be equipped with radio communication equipment at the pilot's station, 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.

CAT.IDE.B.160 Transponder

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