



CAR OPS 2

GENERAL AVIATION OPERATIONS

FOREWORD

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REVISION RECORD

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FOREWORD

- (a) The Civil Aviation and Maritime Navigation Authority (L'Autorità per l'Aviazione Civile e la Navigazione Marittima) of the Republic of San Marino is known in these regulations as the “Authority”
- (b) CAR OPS 2 addresses General Aviation regulations for aeroplanes and helicopters.
 - (1) Part I applies to all international general aviation aeroplane and helicopter operations, including those covered in Part II as well as authorised aerial work operations.
 - (2) Part II adds additional requirements for large aircraft and turbojet aeroplanes and applies to all international general aviation operations as well as authorised aerial work operations.

Note: Refer to applicability for each Part.

- (c) The following must be noted;
 - (1) Where a regulation applies to both aeroplanes and helicopters the term “aircraft” is used in the text.
 - (2) Where a regulation applies only to an aeroplane, the term “aeroplane” is used in the text.
 - (3) Where a regulation applies only to a helicopter, the term “helicopter” is used in the text.
 - (4) The regulation numbering system is different in each Part.
- (d) The editing practices used in this document are as follows:
 - (a) ‘Shall’ is used to indicate a mandatory requirement.
 - (b) ‘Should’ is used to indicate a recommendation.
 - (c) ‘May’ is used to indicate discretion by the Authority, the industry or the applicant, as appropriate.
 - (d) ‘Will’ indicates a mandatory requirement.

Note: The use of the male gender implies the female gender and vice versa.

- (e) Paragraphs and sub-paragraphs with new, amended and corrected text will be enclosed within heavy brackets until a subsequent “amendment” is issued.



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PART I

ALL AIRCRAFT



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**SUBPART A****APPLICABILITY****OPS 2.001 Applicability**

CAR OPS 2, Part I applies to all international General Aviation aeroplane and helicopter operations as well as authorised aerial work operations.

Note: CAR OPS 2, Part II adds additional requirements for large aircraft, turbojet aeroplanes and corporate aviation operations.

OPS 2.002 Exemptions

The Authority may exceptionally grant an exemption from the provisions of CAR OPS 2 when satisfied that there is a need and subject to compliance with any supplementary condition the Authority considers necessary in order to ensure an acceptable level of safety in the particular case.

OPS 2.003 [Authority to Operate

- (a) An operator shall not operate an aircraft for the purpose of General Aviation or Aerial Work operations otherwise than under, and in accordance with, the approvals and limitations of Specific Approvals issued for that aircraft.
- (b) The pilot-in-command shall not conduct operations for which a specific approval is required unless such approval has been issued by the Authority.
- (c) Specific approvals shall follow the layout and contain at least the information listed in ICAO Annex 6 Part II (Aeroplane) or Annex 6 Part III, Section 3 (Helicopter), as applicable.]



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**SUBPART B****GENERAL****OPS 2.101 Compliance with laws, regulations and procedures**

- (a) The pilot-in-command shall comply with the laws, regulations and procedures of those States in which operations are conducted.
- (b) The pilot-in-command shall be familiar with the laws, regulations and procedures, pertinent to the performance of his or her duties, prescribed for the areas to be traversed, the aerodromes to be used and the air navigation facilities relating thereto. The pilot-in-command shall ensure that other members of the flight crew are familiar with such of these laws, regulations and procedures as are pertinent to the performance of their respective duties in the operation of the aircraft.
- (c) The pilot-in-command shall have responsibility for operational control.
- (d) If an emergency situation which endangers the safety or security of the aircraft or persons necessitates the taking of action which involves a violation of local regulations or procedures, the pilot-in-command shall notify the appropriate local authority without delay. If required by the State in which the incident occurs, the pilot-in-command shall submit a report on any such violation to the appropriate authority of such State; in that event, the pilot-in-command shall also submit a copy of it to the Authority, as the State of Registry of the aircraft. Such reports shall be submitted as soon as possible and normally within ten days.
- (e) The pilot-in-command shall ensure that flight crew members demonstrate the ability to speak and understand the English language.

OPS 2.102 Dangerous goods

- (a) The transport of dangerous goods by air shall be conducted in accordance with Annex 18 to the Chicago Convention as last amended and amplified by the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Doc 9284-AN/905), including its supplements and any other addenda or corrigenda.
- (b) Dangerous goods shall only be transported by the operator approved by the Authority 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 the pilot-in-command, or are in baggage, in accordance with Part 8 of the Technical Instructions.
- (c) The pilot-in-command shall take all reasonable measures to prevent dangerous goods from being carried on board inadvertently.
- (d) The pilot-in-command shall, in accordance with the Technical Instructions, report without delay to the Authority and the appropriate authority of the State of occurrence in the event of any dangerous goods accidents or incidents.
- (e) The pilot-in-command shall ensure that passengers are provided with information about dangerous goods in accordance with the Technical Instructions.



OPS 2.103 Use of psychoactive substances

Note: Refer to CAR OPS 0

**SUBPART C****FLIGHT OPERATIONS****OPS 2.201 Operating facilities**

The pilot-in-command shall ensure that a flight will not be commenced unless it has been ascertained by every reasonable means available that the ground and/or water facilities including communication facilities and navigation aids available and directly required on such flight, for the safe operation of the aircraft, are adequate for the type of operation under which the flight is to be conducted.

OPS 2.202 Operational management**(a) Operating instructions — general****(1) Aeroplane**

- (i) An aeroplane shall not be taxied on the movement area of an aerodrome unless the person at the controls is an appropriately qualified pilot or:
- (ii) has been duly authorized by the owner or in the case where it is leased the lessee, or a designated agent;
- (iii) is fully competent to taxi the aeroplane;
- (iv) is qualified to use the radio if radio communications are required; and
- (v) has received instruction from a competent person in respect of aerodrome layout, and where appropriate, information on routes, signs, marking, lights, ATC signals and instructions, phraseology and procedures, and is able to conform to the operational standards required for safe aeroplane movement at the aerodrome.

(2) Helicopter

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

(b) Aerodrome operating minima

Instrument approach operations shall be classified based on the designed lowest operating minima below which an approach operation shall only be continued with the required visual reference as follows:

- (1) Type A: a minimum descent height or decision height at or above 75 m (250 ft); and
- (2) Type B: a decision height below 75 m (250 ft). Type B instrument approach operations are categorized as:
 - (i) Category I (CAT I): a decision height not lower than 60 m (200 ft) and with either a visibility not less than 800 m or a runway visual range not less than 550 m;
 - (ii) Category II (CAT II): a decision height lower than 60 m (200 ft), but not lower than 30 m (100 ft) and a runway visual range not less than 300 m;



- (iii) Category IIIA (CAT IIIA): a decision height lower than 30 m (100 ft) or no decision height and a runway visual range not less than 175 m;
- (iv) Category IIIB (CAT IIIB): a decision height lower than 15 m (50 ft), or no decision height and a runway visual range less than 175 m but not less than 50 m; and
- (v) Category IIIC (CAT IIIC): no decision height and no runway visual range limitations.

Note 1: Where decision height (DH) and runway visual range (RVR) fall into different categories of operation, the instrument approach operation would be conducted in accordance with the requirements of the most demanding category (e.g. an operation with a DH in the range of CAT IIIA but with an RVR in the range of CAT IIIB would be considered a CAT IIIB operation or an operation with a DH in the range of CAT II but with an RVR in the range of CAT I would be considered a CAT II operation).

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

- (3) The operating minima for 2D instrument approach operations using instrument approach procedures shall be determined by establishing a minimum descent altitude (MDA) or minimum descent height (MDH), minimum visibility and, if necessary, cloud conditions.
- (4) The operating minima for 3D instrument approach operations using instrument approach procedures shall be determined by establishing a decision altitude (DA) or decision height (DH) and the minimum visibility or RVR.
- (5) The pilot-in-command shall not operate to or from an aerodrome using operating minima lower than those which may be established for that aerodrome by the State in which it is located, except with the specific approval of that State.

(c) **Passengers**

- (1) The pilot-in-command shall ensure that passengers are made familiar with the location and use of:
 - (i) seat belts;
 - (ii) emergency exits;
 - (iii) life jackets, if the carriage of life jackets is prescribed;
 - (iv) oxygen dispensing equipment; and
 - (v) other emergency equipment provided for individual use, including passenger emergency briefing cards.
- (2) The pilot-in-command shall ensure that all persons on board are aware of the location and general manner of use of the principal emergency equipment carried for collective use.



- (3) In an emergency during flight, the pilot-in-command shall ensure that passengers are instructed in such emergency action as may be appropriate to the circumstances.
- (4) The pilot-in-command shall ensure that, during take-off and landing and whenever considered necessary by reason of turbulence or any emergency occurring during flight, all passengers on board an aircraft shall be secured in their seats by means of the seat belts or harnesses provided.

OPS 2.203 Flight preparation

(a) Pilot-in-Command Responsibilities

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

- (1) the aircraft is airworthy, duly registered and that appropriate certificates with respect thereto are aboard the aircraft;
- (2) the instruments and equipment installed in the aircraft are appropriate, taking into account the expected flight conditions;
- (3) any necessary maintenance has been performed in accordance with Subpart G of this Part;
- (4) the mass of the aircraft and centre of gravity location are such that the flight can be conducted safely, taking into account the flight conditions expected;
- (5) any load carried is properly distributed and safely secured; and
- (6) the aircraft operating limitations, contained in the flight manual, or its equivalent, will not be exceeded.

Note: The pilot-in-command should have sufficient information on climb performance with all engines operating to enable determination of the climb gradient that can be achieved during the departure phase for the existing take-off conditions and intended take-off technique.

(b) Flight planning

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

- (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.

(c) Meteorological conditions - Aeroplane

- (1) A flight to be conducted in accordance with VFR shall not be commenced unless current meteorological reports or a combination of current reports and forecasts indicate that the meteorological conditions along the route or that part of the route to be flown under the VFR will, at the appropriate time, be such as to enable compliance with these rules.



- (1) A flight to be conducted in accordance with the instrument flight rules shall not:
 - (i) take off from the departure aerodrome unless the meteorological conditions, one hour before and ending one hour after the estimated time of arrival at the aerodrome, are at or above the aerodrome operating minima for that operation; and
 - (ii) take off or continue beyond the point of in-flight re-planning unless at the aerodrome of intended landing or at each alternate aerodrome to be selected, current meteorological reports or a combination of current reports and forecasts indicate that the meteorological conditions will be, one hour before and ending one hour after the estimated time of arrival at the aerodrome, at or above the aerodrome operating minima for that operation.
- (2) A flight to be operated in known or expected icing conditions shall not be commenced unless the aeroplane is certificated and equipped to cope with such conditions.
- (3) A flight to be planned or expected to operate in suspected or known ground icing conditions shall not take off unless the aeroplane has been inspected for icing and, if necessary, has been given appropriate de-icing/anti-icing treatment. Accumulation of ice or other naturally occurring contaminants shall be removed so that the aeroplane is kept in an airworthy condition prior to take-off.

(d) **Meteorological conditions - Helicopter**

- (1) Flight in accordance with VFR

[A flight, except one of purely local character in visual meteorological conditions, to be conducted in accordance with VFR shall not be commenced unless current meteorological reports, or a combination of current reports and forecasts, indicate that the meteorological conditions along the route, or that part of the route to be flown under VFR, will, at the appropriate time, be such as to enable compliance with these rules.]

- (2) Flight in accordance IFR

- (i) When an alternate is required.

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

- (ii) When no alternate is required.

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

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



- (B) visibility of at least 1.5 km more than the minimum associated with the procedure.

(3) Flight in icing conditions

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

(e) **Destination alternate aerodromes - Aeroplane**

For a flight to be conducted in accordance with the instrument flight rules, at least one destination alternate aerodrome shall be selected and specified in the flight plans, unless:

- (1) the duration of the flight from the departure aerodrome, or from the point of in-flight re-planning, to the destination aerodrome is such that, taking into account all meteorological conditions and operational information relevant to the flight, at the estimated time of use, a reasonable certainty exists that;
 - (i) the approach and landing may be made under visual meteorological conditions; and
 - (ii) separate runways are usable at the estimated time of use of the destination aerodrome with at least one runway having an operational instrument approach procedure; or
- (2) the aerodrome of intended landing is isolated; and
 - (i) a standard instrument approach procedure is prescribed for the aerodrome of intended landing;
 - (ii) a point of no return has been determined; and
 - (iii) a flight shall not be continued past the point of no return unless available current meteorological information indicates that the following meteorological conditions will exist at the estimated time of use:
 - (A) a cloud base of at least 300 m (1 000 ft) above the minimum associated with the instrument approach procedure; and
 - (B) visibility of at least 5.5 km (3NM) or of 4 km (2NM) more than the minimum associated with the instrument approach procedure.

Note: Separate runways are two or more runways at the same aerodrome configured such that if one runway is closed, operations to the other runway(s) can be conducted.

(f) **Destination alternate aerodromes - Helicopter**

- (1) [For a flight to be conducted in accordance with IFR, at least one alternate heliport or landing location shall be specified in the operational flight plan and the flight plan, unless:
 - (i) VMC weather conditions in prevail; or



- (ii) (A) the heliport or landing location of intended landing is isolated and no alternate heliport or landing location is available; and]
- (B) an instrument approach procedure is prescribed for the isolated heliport of intended landing; and
- (C) a point of no return (PNR) is determined in case of an offshore destination.

(2) Suitable offshore alternates may be specified subject to the following:

- (i) the offshore alternates shall be used only after passing a PNR. Prior to a PNR, onshore alternates shall be used;
- (ii) mechanical reliability of critical control systems and critical components shall be considered and taken into account when determining the suitability of the alternate;
- (iii) one engine inoperative performance capability shall be attainable prior to arrival at the alternate;
- (iv) to the extent possible, deck availability shall be guaranteed; and
- (v) weather information must be reliable and accurate.

(g) **Fuel and oil requirements – Non turbojet aeroplanes below 5700 kg**

A flight shall not be commenced unless, taking into account both the meteorological conditions and any delays that are expected in flight, the aeroplane carries sufficient fuel and oil to ensure that it can safely complete the flight. The amount of fuel to be carried must permit:

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

- (i) by day, to fly to the aerodrome of intended landing, and after that, have a final reserve fuel for at least 30 minutes at normal cruising altitude; or
- (ii) by night, to fly to the aerodrome of intended landing and thereafter have a final reserve fuel for at least 45 minutes at normal cruising altitude;

(2) for IFR flights:

- (i) when no destination alternate is required or when the flight is to an isolated aerodrome, to fly to the aerodrome of intended landing, and after that, have a final reserve fuel for at least 45 minutes at normal cruising altitude; or
- (ii) when a destination alternate is required, to fly to the aerodrome of intended landing, then to an alternate aerodrome and after that, have a final reserve fuel for at least 45 minutes at normal cruising altitude.

(3) Contingencies

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

- (i) forecast meteorological conditions;



- (ii) anticipated ATC routings and traffic delays;
- (iii) procedures for loss of pressurisation or failure of one engine while en-route, where applicable; and
- (iv) any other condition that may delay the landing of the aeroplane or increase fuel and/or oil consumption.

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

(h) **Fuel and oil requirements – Helicopters**

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

- (1) for VFR flights,
 - (i) to fly to the landing site to which the flight is planned; and
 - (ii) have a final reserve fuel to fly thereafter for a period of 20 minutes at best-range-speed; and
 - (iii) have an additional amount of fuel to provide for the increased consumption on the occurrence of potential contingencies, as determined by the Authority
- (2) for IFR flights:
 - (i) [when no alternate heliport or landing location is available (i.e. the heliport of intended landing is isolated and no alternate is available), to fly to and execute an approach at the heliport or landing location to which the flight is planned, and thereafter to have;]
 - (A) a final reserve fuel to fly for 30 minutes at holding speed at 450 m (1 500 ft) above the destination heliport or landing location under standard temperature conditions and approach and land; and
 - (B) have an additional amount of fuel to provide for the increased consumption on the occurrence of potential contingencies.
 - (ii) when an alternate is required, to fly to and execute an approach and a missed approach at the heliport or landing location to which the flight is planned, and thereafter:
 - (A) to fly and execute an approach at the alternate specified in the flight plan; and then
 - (B) have a final reserve fuel to fly for 30 minutes at holding speed at 450 m (1 500 ft) above the alternate aerodrome/operating site under standard temperature conditions and approach and land; and



- (C) have an additional amount of fuel to provide for the increased consumption on the occurrence of potential contingencies.

(3) Contingencies

In computing the fuel required including to provide for contingency, the following shall be taken into consideration;

- (i) forecast meteorological conditions;
- (ii) anticipated ATC routings and traffic delays;
- (iii) procedures for loss of pressurisation or failure of one engine while en-route, where applicable; and
- (iv) any other condition that may delay the landing of the aircraft or increase fuel and/or oil consumption.

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

(i) **Refuelling with passengers on board**

- (1) An aircraft shall not be refuelled when passengers are embarking, on board or disembarking, unless it is attended by the pilot-in-command or other qualified personnel ready to initiate and direct an evacuation of the aircraft by the most practical and expeditious means available.
- (2) In addition to (1) above, a helicopter shall not be refuelled when passengers are embarking, on board or disembarking if the rotor is turning.
- (3) The aircraft shall not be refuelled with aviation gasoline (AVGAS) or wide-cut type fuel or a mixture of these types of fuel, or when an open line is used, when passengers are embarking, on board or disembarking.

(j) **Oxygen supply**

The pilot-in-command shall ensure that breathing oxygen is available to crew members and passengers in sufficient quantities for all flights at such altitudes where a lack of oxygen might result in impairment of the faculties of crew members or harmfully affect passengers.

OPS 2.204 In-flight procedures

(a) **[Aerodrome/Heliport Considerations]**

- (1) A flight shall not be continued towards the aerodrome of intended landing, unless the latest available information indicates that at the expected time of arrival, a landing can be effected at that aerodrome or at least one destination alternate aerodrome, in compliance with the operating minima established.



- (2) An instrument approach shall not be continued below 300 m (1 000 ft) above the aerodrome elevation or into the final approach segment unless the reported visibility or controlling RVR is above the aerodrome operating minimum.
- (3) If, after entering the final approach segment, or after descending below 300 m (1 000 ft) above the aerodrome elevation, the reported visibility or the touchdown RVR falls below the specified minimum, the approach may be continued to DA/H or MDA/H. In any case, an aircraft shall not continue its approach-to-land beyond a point at which the limits of the aerodrome operating minima would be infringed.
- (4) [For an aeroplane, an approach to land shall not be continued below 300 m (1 000 ft) above aerodrome elevation unless the commander is satisfied that, with the runway surface condition information available, the aeroplane performance information indicates that a safe landing can be made.]

(b) **Weather reporting by pilots**

When weather conditions likely to affect the safety of other aircraft are encountered, they shall be reported as soon as possible.

(c) **Hazardous flight conditions**

- (1) Hazardous flight conditions encountered, other than meteorological conditions, shall be reported to the appropriate aeronautical station as soon as possible. The reports so rendered should give such details as may be pertinent to the safety of other aircraft.
- (2) [The commander shall report the runway braking action by special air-report (AIREP) when the runway braking action encountered is not as good as reported.]

(d) **Flight crew members at duty stations**

- (1) Take-off and landing.

All flight crew members required to be on flight deck duty shall be at their stations.

- (2) En route.

All flight crew members required to be on flight deck duty shall remain at their stations except when their absence is necessary for the performance of duties in connection with the operation of the aircraft or for physiological needs.

- (3) Seat belts.

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

- (4) Safety harness.

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



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

(e) Use of oxygen

The pilot-in-command shall ensure that he/she and 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.

Note 1: Cabin crew should be safeguarded so as to ensure reasonable probability of their retaining consciousness during any emergency descent which may be necessary in the event of loss of pressurization and, in addition, they should have such means of protection as will enable them to administer first aid to passengers during stabilized flight following the emergency. Passengers should be safeguarded by such devices or operational procedures as will ensure reasonable probability of their surviving the effects of hypoxia in the event of loss of pressurization.

Note 2: It is not envisaged that cabin crew will always be able to provide assistance to passengers during emergency descent procedures which may be required in the event of loss of pressurization.

(f) Instrument approach procedures

(1) One or more instrument approach procedures designed to support instrument approach operations shall be approved and promulgated by the State in which the aerodrome is located to serve each instrument runway or aerodrome utilized for instrument flight operations.

(2) Aircraft operated in accordance with the instrument flight rules shall comply with the instrument approach procedures approved by the State in which the aerodrome is located, or for heliports, by the State which is responsible for the heliport when located outside the territory of any State.

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

Note: Operational credit includes:

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

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

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

OPS 2.205 Duties of pilot-in-command

(a) The pilot-in-command shall be responsible for the operation, safety and security of the aircraft and the safety of all crew members, passengers and cargo on board.



Note: For a helicopter this responsibility shall commence from the moment the engine(s) are started until the helicopter finally comes to rest at the end of the flight, with the engine(s) shut down and the rotor blades stopped.

- (b) The pilot-in-command shall be responsible for ensuring that a flight;
 - (1) will not be commenced if any flight crew member is incapacitated from performing duties by any cause such as injury, sickness, fatigue or the effects of any psychoactive substance;
 - (2) will not be continued beyond the nearest weather-permissible aerodrome or operating site when a flight crew member's capacity to perform functions is significantly reduced by impairment of faculties from causes such as fatigue, sickness or lack of oxygen;
- (c) The pilot-in-command shall be responsible for notifying the nearest appropriate authority by the quickest available means of any accident involving the aircraft that results in serious injury or death of any person or substantial damage to the aircraft or property.
- (d) When undue proximity to the ground is detected by the pilot-in-command or by a ground proximity warning system, the pilot-in-command shall take corrective action immediately in order to establish safe flight conditions.
- (e) The pilot shall ensure that all baggage carried onto an aeroplane and taken into the passenger cabin is adequately and securely stowed.
- (f) The pilot-in-command of an aircraft shall notify the operator and the Authority as soon as practicable, or within 72 hours, of any event which constitutes an occurrence as described below and which comes to that person's attention in the exercise of that person's functions.
 - (1) any incident relating to such an aircraft or any defect in or malfunctioning of such an aircraft or any part or equipment of such an aircraft, being an incident, malfunctioning or defect endangering, or which if not corrected would endanger, such an aircraft or its occupants or any other person; or
 - (2) any defect in or malfunctioning of any facility on the ground used or intended to be used for purposes of or in connection with the operation of such an aircraft, being a defect or malfunctioning endangering, or which if not corrected would endanger, such an aircraft or its occupants; or
 - (3) any incident in flight in which the pilot-in-command of an aircraft has reason to believe that the aircraft has been in collision with one or more than one bird.

OPS 2.206 Flight Operations officer/Flight dispatcher

Should any person be assigned as a flight operations officer/flight dispatcher, an operator shall ensure that person is trained and maintains familiarization with all features of the operation which are pertinent to their duties, including knowledge and skills related to Human Factors.

OPS 2.207 In-flight Fuel Management

- (a) The pilot-in-command shall continuously ensure that the amount of usable fuel remaining on board to ensure it is not less than the fuel required to proceed to an aerodrome (or helicopter landing site) where a safe landing can be made with the planned final reserve fuel remaining.



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

- (b) The pilot-in-command of an aircraft shall request delay information from ATC when unanticipated circumstances may result in landing at the destination aerodrome with less than the final reserve fuel plus any fuel required to proceed to an alternate aerodrome or the fuel required to operate to an isolated aerodrome.
- (c) The pilot-in-command shall advise ATC of a minimum fuel state by declaring MINIMUM FUEL when, having committed to land at a specific aerodrome (or specific helicopter landing site), the pilot calculates that any change to the existing clearance to that aerodrome (or helicopter landing site), or other air traffic delays, may result in landing with less than the planned final reserve fuel.

Note 1: The declaration of MINIMUM FUEL informs ATC that all planned aerodrome (or helicopter landing site) options have been reduced to a specific aerodrome (or helicopter landing site of intended landing), that no aerodrome (or precautionary helicopter landing site) is available, and any change to the existing clearance, or air traffic delays, may result in landing with less than the planned final reserve fuel. This is not an emergency situation but an indication that an emergency situation is possible should any additional delay occur.

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

- (d) The pilot-in-command shall declare a situation of fuel emergency by broadcasting MAYDAY MAYDAY MAYDAY FUEL, when the calculated usable fuel estimated to be available upon landing at the nearest landing site where a safe landing can be made is less than the required final reserve fuel in compliance with OPS 203(g) or (h) as applicable.

Note 1: The planned final reserve fuel is the minimum amount of fuel required upon landing. The declaration of MAYDAY MAYDAY MAYDAY FUEL informs ATC that all available landing options have been reduced to a specific aerodrome (or helicopter landing site) and a portion of the final reserve fuel may be consumed prior to landing.

Note 2: The pilot estimates with reasonable certainty that the fuel remaining upon landing at the nearest aerodrome (or safe helicopter landing site) will be less than the final reserve fuel taking into consideration the latest information available to the pilot, the area to be overflown, meteorological conditions and other reasonable contingencies.

- (e) The use of fuel after flight commencement for purposes other than originally intended during pre-flight planning shall require a re-analysis and, if applicable, adjustment of the planned operation.
- (f) An operator shall establish policies and procedures to ensure that in-flight fuel checks and fuel management are performed.

**SUBPART D****AIRCRAFT PERFORMANCE OPERATING LIMITATIONS****OPS 2.301 General**

An aircraft shall be operated;

- (a) in compliance with the terms of its airworthiness certificate or equivalent approved document;
- (b) within the operating limitations prescribed by the certificating authority and the Authority, as the State of Registry; and
- (c) if applicable, within the mass limitations imposed by compliance with the applicable noise certification Standards in Annex 16, Volume I, unless otherwise authorized in exceptional circumstances for a certain aerodrome or a runway where there is no noise disturbance problem, by the competent authority of the State in which the aerodrome is situated.

Note: Noise abatement procedures specified by an operator for any one aeroplane type should be the same for all aerodromes.

- (d) Placards, listings, instrument markings, or combinations thereof, containing those operating limitations prescribed by the Authority, as the State of Registry for visual presentation, shall be displayed in the aircraft.
- (e) The pilot-in-command shall determine that aeroplane performance will permit the take-off and departure to be carried out safely.
- (f) The pilot-in-command shall not operate the aircraft over the congested areas of cities, towns or settlements or over an open-air assembly of persons, if in the event of an engine failure a landing cannot be made without causing undue hazard to persons or property on the ground.

OPS 2.302 Helicopter performance and operating limitations

- (a) Helicopters operating in performance Classes 1 and 2 shall be certificated in Category A.
- (b) Helicopters operating in performance Class 3 shall be certificated in either Category A or Category B.
- (c) Except as permitted by the Authority:
 - (1) Take-off or landing from/to heliports in a congested hostile environment shall be conducted in performance Class 1.
 - (2) Operations in performance Class 2 shall be conducted with a safe forced landing capability during take-off and landing.
 - (3) Operations in performance Class 3 shall be conducted in a non-hostile environment.
- (d) An owner/operator may apply to the Authority for a variation to (a) to (c) above after undertaking a risk assessment and considering factors such as:
 - (1) the type of operation and the circumstances of the flight;



- (2) the area/terrain over which the flight is being conducted;
- (3) the probability of a critical engine failure and the consequence of such an event;
- (4) the procedures to maintain the reliability of the engine(s);
- (5) the training and operational procedures to mitigate the consequences of the critical engine failure; and
- (6) installation and utilization of a usage monitoring system.



SUBPART E

AIRCRAFT INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

OPS 2.401 General

- (a) In addition to the minimum equipment necessary for the issuance of a certificate of airworthiness, the instruments, equipment and flight documents prescribed in the following paragraphs shall be installed or carried, as appropriate, in aircraft according to the aircraft used and to the circumstances under which the flight is to be conducted. The prescribed instruments and equipment, including their installation, shall be acceptable to the Authority as the State of Registry.
- (b) Instruments and equipment minimum performance standards are those prescribed in the applicable Technical Standard Orders (TSO) unless different performance standards are prescribed in the operational or airworthiness codes. Instruments and equipment complying with design and performance specifications other than TSO may remain in service, or be installed, unless additional requirements are prescribed in this Subpart. Instruments and equipment that have already been approved do not need to comply with a revised TSO or a revised specification, other than TSO, unless a retroactive requirement is prescribed.

OPS 2.402 Instruments and equipment - General

An aircraft shall be equipped with instruments which will enable the flight crew to control the flight path of the aircraft, carry out any required procedural manoeuvres and observe the operating limitations of the aircraft in the expected operating conditions. [An aircraft on all flights shall be equipped with, or carry on board;]

- (a) an accessible first-aid kit (Refer to AMC OPS 1.745 to CAR OPS 1 for contents);
- (b) portable fire extinguishers of a type which, when discharged, will not cause dangerous contamination of the air within the aircraft. At least one shall be located in:
- (1) the pilot's compartment; and
 - (2) each passenger compartment that is separate from the pilot's compartment and not readily accessible to the pilot or co-pilot; and
 - (3) [Any agent used in a built-in fire extinguisher for each lavatory disposal receptacle for towels, paper or waste in an aeroplane for which the individual certificate of airworthiness is first issued on or after 31 December 2011 and any extinguishing agent used in a portable fire extinguisher in an aircraft for which the individual certificate of airworthiness is first issued on or after 31 December 2018 shall:]
 - (i) meet the applicable minimum performance requirements of the Authority as the State of Registry; and
 - (ii) not be of a type listed in Annex A, Group II of the *Montreal Protocol on Substances That Deplete the Ozone Layer*, 8th Edition, 2009.
- (c)
 - (1) a seat or berth for each person who is aged 24 months or more; and
 - (2) a seat belt for each seat and restraining belts for each berth;

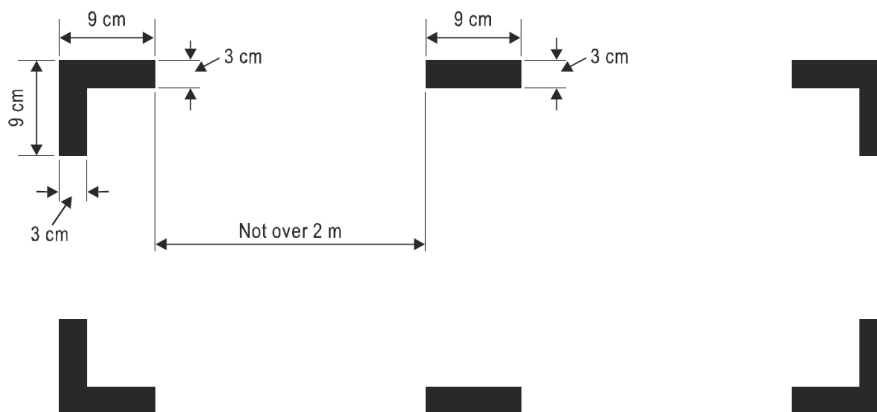


- (d) the following manuals, charts and information:
 - (1) [the flight manual or other documents or information concerning any operating limitations prescribed for the aircraft by the certifying authority of the State of Registry, required for the application of CAR OPS 2, Part I, Subpart C;
 - (2) any specific approval issued by the Authority under CAR OPS 2.003 for the operation(s) to be conducted.]
 - (3) current and suitable charts for the route of the proposed flight and all routes along which it is reasonable to expect that the flight may be diverted;
 - (4) procedures, as prescribed in ICAO Annex 2, for pilots-in-command of intercepted aircraft;
 - (5) [a list of visual signals for use by intercepting and intercepted aircraft, as contained in CAR OPS 0;
 - (6) the journey log book for the aircraft; and]
 - (7) all helicopters on all flights should be equipped with the ground-air signal codes for search and rescue purposes.
- (e) where the aircraft is fitted with fuses that are accessible in flight, spare electrical fuses of appropriate ratings for replacement of those fuses.

OPS 2.403 Marking of break-in points

- (a) If areas of the fuselage suitable for break-in by rescue crews in emergency are marked on an aircraft such areas shall be marked as shown below (see figure following). The colour of the markings shall be red or yellow, and if necessary they shall be outlined in white to contrast with the background.
- (b) If the corner markings are more than 2 m apart, intermediate lines 9 cm x 3 cm shall be inserted so that there is no more than 2 m between adjacent markings.

Note: This regulation does not require any aircraft to have break-in areas.



OPS 2.404 Instruments and equipment - Day VFR

Aircraft operated under VFR by day shall;



- (a) be equipped with a means of measuring and displaying the following;
- (1) magnetic heading,
 - (2) barometric altitude (sensitive for helicopters),
 - (3) indicated airspeed,
 - (4) for aeroplanes, Mach number, whenever speed limitations are expressed in terms of Mach number; and
 - (5) such additional equipment as may be prescribed by the Authority.
- (b) Equipped with, or shall carry, a means of measuring and displaying the time in hours, minutes and seconds.

OPS 2.405 Instruments and equipment - Night VFR

Aircraft operated under visual meteorological conditions (VMC) at night, or in conditions where the aircraft cannot be maintained in a desired flight path without reference to one or more additional instruments shall be, in addition to OPS 2.404, equipped with:

- (a) a means of measuring and displaying the following:
- (1) turn and slip,
 - (2) attitude,
 - (3) vertical speed, and
 - (4) stabilised heading; and
 - (5) outside air temperature;
 - (6) for helicopters, an attitude indicator (artificial horizon) for each required pilot.
- (b) a means of indicating when the supply of power to the gyroscopic instruments is not adequate.
- (c) a means of preventing malfunction of the airspeed indicating system due to condensation or icing.

OPS 2.406 Operating lights for night operations

Aircraft operated at night shall be equipped with:

- (a) an anti-collision light system;
- (b) navigation/position lights;
- (c) one landing light for aeroplanes, two landing lights for helicopters;

Note: for helicopters one landing light should be trainable, at least in the vertical plane



- (d) lighting supplied from the aeroplane's electrical system to provide adequate illumination for all instruments and equipment essential to the safe operation of the aircraft;
- (e) lighting supplied from the aeroplane's electrical system to provide illumination in all passenger compartments;
- (f) an independent portable light for each crew member station; and
- (g) For aeroplanes, lights to conform with the International Regulations for Preventing Collisions at Sea if the aeroplane is operated as a seaplane.

OPS 2.407 Instruments and equipment - IFR

Aircraft operated under IFR shall be equipped with;

- (a) a means of measuring and displaying the following:
 - (1) [magnetic heading (standby compass),
 - (2) barometric altitude (sensitive barometric altimeter for helicopters),
 - (3) indicated airspeed,
 - (4) rate of climb and descent,
 - (5) turn and slip,
 - (6) aircraft attitude,
 - (7) stabilised aircraft heading,
 - (8) a means of indicating on the flight deck the outside air temperature, and
 - (9) for aeroplanes, Mach number, whenever speed limitations are expressed in terms of Mach number; and
 - (10) for helicopters, an attitude indicator (artificial horizon) for each required pilot and one additional attitude indicator.

Note: The requirements of (5), (6) and (7) may be met by combinations of instruments or by integrated flight director systems provided that the safeguards against total failure, inherent in the three separate instruments, are retained.

- (b) or shall carry, a means of measuring and displaying the time in hours, minutes and seconds.
- (c) a means of indicating when the supply of power to the gyroscopic instruments is adequate; and
- (c) a means of preventing malfunction of the airspeed indicating system due to condensation or icing.
- (d) such additional instruments or equipment as may be prescribed by the Authority.]

**OPS 2.408 Flight over water - Aeroplane**

- (a) The following aeroplanes shall be equipped with a life-jacket for each person on board, or equivalent individual floatation device for each person on board younger than 24 months, that shall be worn or stowed in a position that is readily accessible from the seat or berth of the person for whose use it is provided:
- (1) single-engined landplanes when:
 - (i) flying over water beyond gliding distance from land; or
 - (ii) taking off or landing at an aerodrome or operating site where, in the opinion of the pilot-in-command, the take-off or approach path is so disposed over water that there would be a likelihood of a ditching;
 - (2) seaplanes operated over water; and
 - (3) aeroplanes operated at a distance away from land where an emergency landing is possible greater than that corresponding to 30 minutes at normal cruising speed or 50 NM, whichever is less.
- (b) Seaplanes operated over water shall be equipped with:
- (1) one anchor;
 - (2) one sea anchor (drogue), when necessary to assist in manoeuvring; and
 - (3) equipment for making the sound signals, as prescribed in the International Regulations for Preventing Collisions at Sea, where applicable.
- (c) The pilot-in-command of an aeroplane operated at a distance away from land where an emergency landing is possible greater than that corresponding to 30 minutes at normal cruising speed or 50 NM, whichever is the lesser, shall determine the risks to survival of the occupants of the aeroplane in the event of a ditching by taking into account the operating environment and conditions such as, but not limited to, sea state and sea and air temperatures, the distance from land suitable for making an emergency landing, and the availability of search and rescue facilities. Based upon that assessment, he/she shall determine the carriage of:
- (1) equipment for making the distress signals;
 - (2) life-rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency; and
 - (3) life-saving equipment, to provide the means of sustaining life, as appropriate to the flight to be undertaken.

OPS 2.409 Flight over water - Helicopter

Helicopters, on flights over water, shall be equipped with;

- (a) a permanent or rapidly deployable means of floatation so as to ensure a safe ditching of the helicopter when;



- (1) engaged in offshore operations; or
 - (2) flying over water in a hostile environment at a distance from land corresponding to more than 10 minutes at normal cruise speed when operating in performance Class 1 or 2; or
 - (3) flying over water in a non-hostile environment at a distance from land corresponding to more than 30 minutes at normal cruise speed when operating in performance Class 1; or
 - (4) flying over water beyond autorotational or safe forced landing distance from land when operating in performance Class 3.
- (b) a life-jacket equipped with a means of electrical illumination for each person on board, or equivalent individual floatation device equipped with a means of electrical illumination for each person on board younger than 24 months, that shall be worn or stowed in a position that is readily accessible from the seat or berth of the person for whose use it is provided;
- (c) life-saving rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency, provided with such life-saving equipment including means of sustaining life as is appropriate to the flight to be undertaken;

Note: At least 50 per cent of the life rafts carried in accordance with the provisions of 4.3.2 should be deployable by remote control. Rafts which are not deployable by remote control and which have a mass of more than 40 kg should be equipped with some means of mechanically assisted deployment.

- (d) when taking off or landing at a heliport where, in the opinion of the Authority, as the State of the Operator, the take-off or approach path is so disposed over water that in the event of a mishap there would be likelihood of a ditching, at least the equipment required in (b) above shall be carried; and
- (e) equipment for making the distress signals;

OPS 2.410 Survival equipment

Aircraft operated over areas in which search and rescue would be especially difficult shall be equipped with such signalling devices and life-saving equipment, including means of sustaining life, as may be appropriate to the area overflown.

OPS 2.411 Supplemental oxygen — pressurised aircraft

- (a) Pressurised aircraft operated at flight altitudes for which the oxygen supply is required shall be equipped with oxygen storage and dispensing apparatus capable of storing and dispensing the required oxygen supplies.
- (b) Pressurised aircraft operated above flight altitudes at which the pressure altitude in the passenger compartments is above 10 000 ft shall carry enough breathing oxygen to supply:
- (1) all crew members and:
 - (i) 100 % of the passengers for any period when the cabin pressure altitude exceeds 15 000 ft, but in no case less than 10 minutes' supply.



- (ii) at least 30 % of the passengers, for any period when, in the event of loss of pressurisation and taking into account the circumstances of the flight, the pressure altitude in the passenger compartment will be between 14 000 ft and 15 000 ft; and
 - (iii) at least 10 % of the passengers for any period in excess of 30 minutes when the pressure altitude in the passenger compartment will be between 10 000 ft and 14 000 ft; and
- (2) all the occupants of the passenger compartment for no less than 10 minutes, in the case of aircraft operated at pressure altitudes above 25 000 ft, or operated below that altitude but under conditions that will not allow them to descend safely to a pressure altitude of 13 000 ft within 4 minutes.
- (c) Pressurised aircraft operated at flight altitudes above 25 000 ft shall, in addition, be equipped with a device to provide a warning indication to the flight crew of any loss of pressurisation.

OPS 2.412 Supplemental oxygen — non-pressurised aircraft

- (a) Non-pressurised aircraft operated at flight altitudes when the oxygen supply is required shall be equipped with oxygen storage and dispensing apparatus capable of storing and dispensing the required oxygen supplies.
- (b) Non-pressurised aircraft operated above flight altitudes at which the pressure altitude in the passenger compartments is above 10 000 ft shall carry enough breathing oxygen to supply:
- (1) all crew members and at least 10 % of the passengers for any period in excess of 30 minutes when the pressure altitude in the passenger compartment will be between 10 000 ft and 13 000 ft; and
 - (2) all crew members and passengers for any period that the pressure altitude in the passenger compartment will be above 13 000 ft.

OPS 2.413 Noise Certification

All aircraft required to comply with the noise certification standards of ICAO Annex 16 shall carry a document attesting noise certification in the English language.

OPS 2.414 Emergency locator transmitter (ELT)

- (a) Aeroplanes shall be equipped with;
- (1) at least one ELT of any type;
 - (2) at least one automatic ELT, for those aeroplanes first issued with an individual C of A after 01 July 2008; or
 - (3) a survival ELT (ELT(S)) or a personal locator beacon (PLB), carried by the pilot-in-command or a passenger, when certified for a maximum passenger seating configuration of six or less.
- (b) Helicopters shall be equipped with;
- (1) From 1 July 2008, all helicopters operating in performance Class 1 and 2 shall be equipped



with at least one automatic ELT and, when operating on flights over water, with at least one automatic ELT and one ELT(S) in a raft or life jacket.

- (2) From 1 July 2008, all helicopters operating in performance Class 3 shall be equipped with at least one automatic ELT and, when operating on flights over water, with at least one automatic ELT and one ELT(S) in a raft or life jacket.
- (c) ELTs of any type and PLBs shall be capable of transmitting simultaneously on 121.5 MHz and 406 MHz.
- (d) ELT equipment carried shall operate in accordance with the relevant provisions of ICAO Annex 10, Volume III.

OPS 2.415 Pressure-altitude reporting transponder

All aircraft shall be equipped with a pressure-altitude reporting transponder which operates in accordance with the relevant provisions of ICAO Annex 10, Volume IV.

OPS 2.416 Microphones

When operating under IFR all flight crew members required to be on flight deck duty shall communicate through boom or throat microphones

OPS 2.417 Aircraft equipped with ALS, HUD, EVS, SVS and/or CVS

- (a) [Where aircraft are equipped with automatic landing systems, a HUD and/or or equivalent displays, EVS, SVS or CVS, or any combination of those systems into a hybrid system, criteria for the use of such systems to gain operational benefit for the safe operation of the aircraft shall be approved by the Authority. Such approvals shall not affect the classification of the instrument approach procedure.
- (b) In establishing operational criteria for the use of automatic landing systems, a HUD or equivalent displays, EVS, SVS or CVS, the Authority shall require that:
 - (1) the equipment meets the appropriate airworthiness certification requirements;
 - (2) the operator/owner has carried out a safety risk assessment associated with the operations supported by the automatic landing systems, HUD or equivalent displays, EVS, SVS or CVS;
 - (3) the operator/owner has established and documented the procedures for the use of, and training requirements for, automatic landing systems, HUD or equivalent displays, EVS, SVS or CVS.]

OPS 2.418 Ground proximity warning systems (GPWS)

- (a) All turbine-engined aeroplanes authorized to carry more than nine passengers shall be equipped with a ground proximity warning system which has a forward-looking terrain avoidance function.
- (b) A ground proximity warning system shall provide automatically a timely and distinctive warning to the flight crew when the aeroplane is in potentially hazardous proximity to the earth's surface.



- (c) A ground proximity warning system shall provide, at a minimum, warnings of at least the following circumstances:
- (1) excessive descent rate;
 - (2) excessive altitude loss after take-off or go-around; and
 - (3) unsafe terrain clearance.
- and should provide the warnings in sub-paragraph (d);
- (d) A ground proximity warning system installed in turbine-engined aeroplanes authorized to carry more than nine passengers for which the individual certificate of airworthiness was first issued after 1 January 2011 shall provide, as a minimum, warnings of at least the following circumstances;
- (1) excessive descent rate;
 - (2) excessive terrain closure rate;
 - (3) excessive altitude loss after take-off or go-around;
 - (4) unsafe terrain clearance while not in landing configuration;
 - (i) gear not locked down;
 - (ii) flaps not in a landing position; and
 - (5) excessive descent below the instrument glide path.

OPS 2.419 Electronic Flight Bags (EFB)

- (a) Where portable EFBs are used on board an aircraft, the pilot-in-command and the owner shall ensure that they do not affect the performance of the aircraft systems, equipment or the ability to operate the aircraft.
- (b) Where EFBs are used on board an aircraft the pilot-in-command and/or the owner shall:
- (1) assess the safety risk(s) associated with each EFB function;
 - (2) establish the procedures for the use of, and training requirements for, the device and each EFB function; and
 - (3) ensure that, in the event of an EFB failure, sufficient information is readily available to the flight crew for the flight to be conducted safely.
- (c) The Authority shall establish criteria for the operational use of EFB functions to be used for the safe operations of aircraft. In establishing criteria for the operational use of EFBs, the Authority shall ensure that:
- (1) the EFB equipment and its associated installation hardware, including interaction with aircraft systems if applicable, meet the appropriate airworthiness certification requirements;



- (2) the owner has assessed the risks associated with the operations supported by the EFB function(s);
- (3) the owner has established requirements for redundancy of the information (if appropriate) contained and displayed by the EFB function(s);
- (4) the owner has established and documented procedures for the management of the EFB function(s) including any databases it may use; and
- (5) the owner has established and documented the procedures for the use of, and training requirements for, the EFB function(s).

Note: Guidance on EFB equipment, functions and establishing criteria for their operational use is contained in the Manual on Electronic Flight Bags (ICAO Doc 10020).

OPS 2.421 Documents to be Carried

Every aircraft engaged in international navigation shall carry the following documents;

- (a) Its certificate of registration;
- (b) Its certificate of airworthiness;
- (c) The appropriate licences for each member of the crew;
- (d) Its journey log book;
- (e) If it is equipped with radio apparatus, the aircraft radio station licence;
- (f) If it carries passengers, a list of their names and places of embarkation and destination; and
- (g) If it carries cargo, a manifest and detailed declarations of the cargo.

**SUBPART F****[AIRCRAFT COMMUNICATION, NAVIGATION AND SURVEILLANCE EQUIPMENT]****OPS 2.501 Communication equipment**

- (a) Where required by the airspace being flown aircraft shall be equipped with radio communication equipment capable of conducting two-way communication with those aeronautical stations and on those frequencies to meet airspace requirements.
- (b) Radio communication equipment, if required by (a), shall provide for communication on the aeronautical emergency frequency 121.5 MHz.
- (c) When more than one communications equipment unit is required, each shall be independent of the other or others to the extent that a failure in any one will not result in failure of any other.
- (d) When a radio communication system is required, and in addition to the flight crew interphone system, helicopters shall be equipped with a transmit button on the flight controls for each required pilot and/or crew member at his/her working station.
- (e) [For operations where communication equipment is required to meet an RCP specification for performance-based communication (PBC), an aircraft shall, in addition to the requirements specified above;
 - (1) be provided with communication equipment which will enable it to operate in accordance with the prescribed RCP specification(s);
 - (2) have information relevant to the aircraft RCP specification capabilities listed in the flight manual or other aircraft documentation, approved by the State of Design or State of Registry; and
 - (3) where the aircraft is operated in accordance with a MEL, have information relevant to the aircraft RCP specification capabilities included in the MEL.
- (f) The Authority, as the State of Registry, shall establish criteria for operations where an RCP specification for PBC has been prescribed.]
- (g) When establishing criteria for operations where an RCP specification for PBC has been prescribed, ensure that the operator/owner has established and documented:
 - (1) normal and abnormal procedures, including contingency procedures;
 - (2) flight crew qualification and proficiency requirements, in accordance with appropriate RCP specifications;
 - (3) a training programme for relevant personnel consistent with the intended operations; and
 - (4) appropriate maintenance procedures to ensure continued airworthiness, in accordance with appropriate RCP specifications.
- (h) The Authority shall ensure that, in respect of those aeroplanes mentioned in sub-paragraph (f) above, adequate provisions exist for:



- (1) receiving the reports of observed communication performance issued by monitoring programmes; and
- (2) taking immediate corrective action for individual aircraft, aircraft types or operators, identified in such reports as not complying with the RCP specification.]

OPS 2.502 Navigation equipment

- (a) Aircraft operated over routes that cannot be navigated by reference to visual landmarks shall be equipped with navigation equipment that will enable them to proceed in accordance with:
 - (1) the ATS flight plan, if applicable; and
 - (2) the applicable airspace requirements.

except when, if not so precluded by the appropriate authority, navigation for flights under VFR is accomplished by visual reference to landmarks. For helicopters operating internationally, landmarks shall be located at least every 110 km (60 NM).

- (b) Aircraft shall have sufficient navigation equipment to ensure that, in the event of the failure of one item of equipment at any stage of the flight, the remaining equipment shall allow safe navigation in accordance with (a), or an appropriate contingency action, to be completed safely.
- (c) Aircraft operated on flights in which it is intended to land in IMC shall be equipped with navigation equipment capable of providing guidance to a point from which a visual landing can be performed. This equipment shall be capable of providing such guidance for each aerodrome at which is intended to land in IMC and for any designated alternate aerodromes.

OPS 2.503 Performance Based Navigation

For operations where a navigation specification for performance-based navigation (PBN) has been prescribed, an aircraft shall, in addition to the requirements specified in OPS 2.502:

- (a) be provided with navigation equipment which will enable it to operate in accordance with the prescribed navigation specification(s);
- (b) [have information relevant to the aircraft navigation specification capabilities listed in the flight manual or other aircraft documentation, approved by the State of Design or State of Registry; and
- (c) where the aircraft is operated in accordance with a MEL, have information relevant to the aircraft navigation specification capabilities included in the MEL.
- (d) The Authority, as the State of Registry, shall establish criteria for operations where a navigation specification for PBN has been prescribed.
- (e) When establishing criteria for operations where an navigation specification for PBN has been prescribed, ensure that the operator/owner has established and documented:
 - (1) normal and abnormal procedures, including contingency procedures;
 - (2) flight crew qualification and proficiency requirements, in accordance with appropriate navigation specifications;



- (3) a training programme for relevant personnel consistent with the intended operations; and
 - (4) appropriate maintenance procedures to ensure continued airworthiness, in accordance with appropriate navigation specifications.
- (f) The Authority, as the State of Registry, shall issue a specific approval for operations based on PBN authorization required (AR) navigation specifications.]

OPS 2.504 [NAT HLA - Aeroplane]

For flights in defined portions of the North Atlantic High Level Airspace where, based on regional air navigation agreement, minimum navigation performance specifications are prescribed, an aeroplane shall be provided with navigation equipment which:

- (a) continuously provides indications to the flight crew of adherence to or departure from track to the required degree of accuracy at any point along that track; and
- (b) has been authorized by the State of Registry for the NAT HLA operations concerned.]

OPS 2.505 RVSM - Aeroplane

(a) For flights in defined portions of airspace where, based on regional air navigation agreement, a reduced vertical separation minimum (RVSM) of 300 m (1 000 ft) is applied between FL 290 and FL 410 inclusive, an aeroplane:

- (1) shall be provided with equipment which is capable of:
 - (i) indicating to the flight crew the flight level being flown;
 - (ii) automatically maintaining a selected flight level;
 - (iii) providing an alert to the flight crew when a deviation occurs from the selected flight level. The threshold for the alert shall not exceed ± 90 m (300 ft); and
 - (iv) automatically reporting pressure-altitude;
 - (2) shall be authorized by the Authority as the State of Registry for operation in the airspace concerned; and
 - (3) shall demonstrate a satisfactory vertical navigation performance.
- (b) Prior to granting the RVSM approval required, the Authority shall be satisfied that:
- (1) the vertical navigation performance capability of the aeroplane is satisfactory;
 - (2) the owner/operator has instituted appropriate procedures in respect of continued airworthiness (maintenance and repair) practices and programmes; and
 - (3) the owner/operator has instituted appropriate flight crew procedures for operations in RVSM airspace.
- (c) The Authority as the State of Registry shall ensure that adequate provisions exist for:



- (1) receiving the reports of height-keeping performance issued by the monitoring agencies; and
 - (2) taking immediate corrective action for individual aircraft, or aircraft type groups, identified in such reports as not complying with the height-keeping requirements for operation in airspace where RVSM is applied.
- (d) The Authority as the State of Registry that has issued an RVSM approval to an owner/operator shall establish a requirement which ensures that a minimum of two aeroplanes of each aircraft type grouping of the owner/operator have their height-keeping performance monitored, at least once every two years or within intervals of 1 000 flight hours per aeroplane, whichever period is longer. If an owner/operator aircraft type grouping consists of a single aeroplane, monitoring of that aeroplane shall be accomplished within the specified period.
- (e) The Authority shall establish provisions and procedures which ensure that appropriate action will be taken in respect of aircraft and owners/operators found to be operating in RVSM airspace without a valid RVSM approval.

OPS 2.506 Transponder

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

OPS 2.507 [Surveillance Equipment]

- (a) An aircraft shall be provided with surveillance equipment which will enable it to operate in accordance with the requirements of air traffic services.
- (b) For operations where surveillance equipment is required to meet an RSP specification for performance-based surveillance (PBS), an aircraft shall, in addition to the requirements specified in sub-paragraph (a);
- (1) be provided with surveillance equipment which will enable it to operate in accordance with the prescribed RSP specification(s);
 - (2) have information relevant to the aircraft RSP specification capabilities listed in the flight manual or other aircraft documentation approved by the State of Design or Authority; and
 - (3) where the aircraft is operated in accordance with a MEL, have information relevant to the aircraft RSP specification capabilities included in the MEL.
- (c) The Authority, as the State of the Registry, shall establish criteria for operations where an RSP specification for PBS has been prescribed.
- (d) In establishing criteria for operations where an RSP specification for PBS has been prescribed, the Authority shall require that the operator/owner has established and documented;
- (1) normal and abnormal procedures, including contingency procedures;
 - (2) flight crew qualification and proficiency requirements, in accordance with appropriate RSP specifications;
 - (3) a training programme for relevant personnel consistent with the intended operations; and



- (4) appropriate maintenance procedures to ensure continued airworthiness, in accordance with appropriate RSP specifications.
- (e) The Authority, as the State of Registry, shall ensure that, in respect of those aircraft mentioned in sub-paragraph (b), adequate provisions exist for;
- (1) receiving the reports of observed surveillance performance issued by monitoring programmes; and
 - (2) taking immediate corrective action for individual aircraft, aircraft types or operators, identified in such reports as not complying with the RSP specification.]



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SUBPART G

AIRCRAFT MAINTENANCE

Note: For the purpose of this chapter “aircraft” includes: engines, propellers, power transmissions, rotors, components, accessories, instruments, equipment and apparatus including emergency equipment.

OPS 2.601 Owner’s maintenance responsibilities

- (a) The owner of an aircraft, or in the case where it is leased, the lessee, shall ensure, in accordance with the applicable regulations contained in CAR AIR, CAR GEN or CAR 21, that;
 - (1) the aircraft is maintained in an airworthy condition;
 - (2) the operational and emergency equipment necessary for an intended flight is serviceable; and
 - (3) the certificate of airworthiness of the aircraft remains valid.
- (b) The owner or the lessee shall not operate the aircraft unless it is maintained and released to service under a system acceptable to the State of Registry.
- (c) When the maintenance release is not issued by an approved maintenance organization, the person signing the maintenance release shall be licensed in accordance with CAR LIC.
- (d) The owner or the lessee shall ensure that the maintenance of the aircraft is performed in accordance with a maintenance programme acceptable to the Authority as the State of Registry.
- (e) The owner or the lessee shall appoint an Airworthiness Coordinator who shall be responsible for the control of the maintenance system and the maintenance control manual, if applicable.

OPS 2.602 Maintenance records

- (a) The owner of an aircraft, or in the case where it is leased, the lessee, shall ensure that the following records are kept for the periods mentioned in (b) below:
 - (1) the total time in service (hours, calendar time and cycles, as appropriate) of the aircraft and all life limited components;
 - (2) the current status of compliance with all applicable mandatory continuing airworthiness information;
 - (3) appropriate details of modifications and repairs;
 - (4) the time in service (hours, calendar time and cycles, as appropriate) since the last overhaul of the aircraft or its components subject to a mandatory overhaul life;
 - (5) the current status of the aircraft’s compliance with the maintenance programme; and
 - (6) the detailed maintenance records to show that all requirements for the signing of a maintenance release have been met.



- (b) The records in (a)(1) to (5) above shall be kept for a minimum period of 90 days after the unit to which they refer has been permanently withdrawn from service and the records in (a)(6) for a minimum period of one year after the signing of the maintenance release.
- (c) In the event of a temporary change of owner or lessee, the records shall be made available to the new owner or lessee. In the event of any permanent change of owner or lessee, the records shall be transferred to the new owner or lessee.

OPS 2.603 Modifications and repairs

All modifications and repairs shall comply with airworthiness requirements acceptable to the Authority, as the State of Registry. Procedures shall be established to ensure that the substantiating data supporting compliance with the airworthiness requirements are retained.

OPS 2.604 Maintenance release

- (a) A maintenance release shall be completed and signed, as prescribed by the Authority, as the State of Registry, to certify that the maintenance work performed has been completed satisfactorily and in accordance with data and procedures acceptable to the State of Registry.
- (b) A maintenance release shall contain a certification including:
 - (1) basic details of the maintenance performed;
 - (2) the date such maintenance was completed;
 - (3) when applicable, the identity of the approved maintenance organization; and
 - (4) the identity of the authorized person or persons signing the release.

**SUBPART H****AIRCRAFT FLIGHT CREW****OPS 2.701 Composition of the flight crew**

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

OPS 2.702 Qualifications

- (a) The pilot-in-command shall:
- (1) ensure that each flight crew member holds a valid licence issued by the Authority, as the State of Registry, or if issued by another Contracting State, rendered valid by the Authority as the State of Registry;
 - (2) ensure that flight crew members are properly rated; and
 - (3) be satisfied that flight crew members have maintained competency.
- (b) The pilot-in-command of an aeroplane equipped with an airborne collision avoidance system (ACAS II) shall ensure that each flight crew member has been appropriately trained to competency in the use of ACAS II equipment and the avoidance of collision.



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**SUBPART I****MANUALS LOGS & RECORDS****OPS 2.801 Flight manual**

The aircraft flight manual shall be updated by implementing changes made mandatory by the Authority as the State of Registry.

OPS 2.802 Journey log book

A journey log book shall be maintained for every aeroplane engaged in international air navigation in which shall be entered particulars of the aeroplane, its crew and each journey.

Note: The aeroplane journey log should contain the following items:

- (a) *aeroplane nationality and registration;*
- (b) *date;*
- (c) *crew member names and duty assignments;*
- (d) *departure and arrival points and times;*
- (e) *purpose of flight;*
- (f) *observations regarding the flight; and*
- (g) *signature of the pilot-in-command.*

OPS 2.803 Records of emergency and survival equipment carried

The owner of the aeroplane, or in the case where it is leased, the lessee, shall at all times have available for immediate communication to rescue coordination centres, lists containing information on the emergency and survival equipment carried on board the aeroplane engaged in international air navigation. The information shall include, as applicable, the number, colour and type of life rafts and pyrotechnics, details of emergency medical supplies, water supplies and the type and frequencies of the emergency portable radio equipment.



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**SUBPART J****SECURITY****OPS 2.901 Security of aircraft**

The pilot-in-command shall be responsible for the security of the aircraft during its operation.

OPS 2.902 Reporting acts of unlawful interference

Following an act of unlawful interference, the pilot-in-command shall submit a report of such an act to the designated local authority.

Note: In the context of this Subpart, the word "security" is used in the sense of prevention of acts of unlawful interference against civil aviation.



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PART II

LARGE & TURBO JET AIRCRAFT



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**SUBPART A****APPLICABILITY****OPS 2.010 Applicability**

- (a) CAR OPS 2, Part II states additional requirements for large aircraft and turbojet aeroplanes and applies to all international general aviation operations as well as authorised aerial work operations. In addition to the regulations contained in Part I, General Aviation and aerial work operators of the following aircraft shall also comply with the regulations contained in Part II.
- (1) an aeroplane;
 - (i) with a maximum certificated take-off mass exceeding 5 700 kg, or
 - (ii) equipped with one or more turbojet engines.
 - (2) a helicopter certificated for a maximum take-off mass exceeding 3 175 kg.
- (b) Whereby the operator leases an aeroplane with flight crew to another person for a private operation, no charge can be made for the flights conducted under that arrangement other than those specified below;
- (1) Fuel, oil, lubricants, and other additives.
 - (2) Travel expenses of the crew, including food, lodging, and ground transportation.
 - (3) Hangar and tie-down costs away from the aircraft's base of operation.
 - (4) Insurance obtained for the specific flight.
 - (5) Landing fees, airport taxes, and similar assessments.
 - (6) Customs, foreign permit, and similar fees directly related to the flight.
 - (7) In flight food and beverages.
 - (8) Passenger ground transportation.
 - (9) Flight planning and weather contract services.
 - (10) An additional charge equal to 100% of the expenses listed in sub-paragraph (1).



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**SUBPART B****GENERAL****OPS 2.110 Compliance with laws, regulations and procedures**

- (a) An operator shall ensure that all employees know that they must comply with the laws, regulations and procedures of those States in which operations are conducted.
- (b) An operator shall ensure that all pilots are familiar with the laws, regulations and procedures, pertinent to the performance of their duties, prescribed for the areas to be traversed, the aerodromes to be used and the air navigation facilities relating thereto. The operator shall ensure that other members of the flight crew are familiar with such of these laws, regulations and procedures as are pertinent to the performance of their respective duties in the operation of the aircraft.
- (c) The pilot-in-command is responsible for operational control. An operator shall describe the operational control system in the operations manual and identify the roles and responsibilities of those involved with the system.
- (d) An operator shall ensure that the pilot-in-command has available on board the aircraft all the essential information concerning the search and rescue services in the area over which the aircraft will be flown.
- (e) An operator shall ensure that flight crew members demonstrate the ability to speak and understand the English language.

OPS 2.120 Safety management system

An operator shall establish and maintain a safety management system that is appropriate to the size and complexity of the operation.



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SUBPART C

FLIGHT OPERATIONS

OPS 2.210 Operating facilities

An operator shall ensure that a flight will not be commenced unless it has been ascertained by every reasonable means available that the ground and/or water facilities including communication facilities and navigation aids available and directly required on such flight, for the safe operation of the aircraft, are adequate for the type of operation under which the flight is to be conducted.

OPS 2.220 Operational management**(a) Operator notification**

- (1) If an operator has an operating base in a State other than the Republic of San Marino, as the State of Registry, the operator shall notify the State in which the operating base is located.
- (2) Upon notification in accordance with (1) above, safety and security oversight shall be coordinated between the State in which the operating base is located and the Authority as the State of Registry.

(b) Operations manual

An operator shall provide, for the use and guidance of personnel concerned, an operations manual containing all the instructions and information necessary for operations personnel to perform their duties. The operations manual shall be amended or revised as is necessary to ensure that the information contained therein is kept up to date. All such amendments or revisions shall be issued to all personnel that are required to use this manual. The design of the manual should observe Human Factors principles.

(c) Operating instructions — general

An operator shall ensure that all operations personnel are properly instructed in their particular duties and responsibilities and the relationship of such duties to the operation as a whole.

The operator should issue operating instructions and provide information on aeroplane climb performance to enable the pilot-in-command to determine the climb gradient that can be achieved during the departure phase for the existing take-off conditions and intended take-off technique. This information should be included in the Operations Manual.

(d) In-flight simulation of emergency situations

An operator shall ensure that when passengers are being carried, no emergency or abnormal situations shall be simulated.

(e) Checklists

Checklists shall be used by flight crews prior to, during and after all phases of operations, and in emergencies, to ensure compliance with the operating procedures contained in the aircraft operating manual and the aircraft flight manual or other documents associated with the certificate of airworthiness and otherwise in the operations manual, are followed. The design and utilisation



of checklists shall observe Human Factors principles.

(f) **Minimum flight altitudes**

An operator shall specify, for flights which are to be conducted in accordance with the instrument flight rules, the method of establishing terrain clearance altitudes.

(g) **Aerodrome operating minima**

The pilot-in-command shall establish operating minima in accordance with criteria specified by the Authority for each aerodrome (including heliport or landing location) to be used in operations. Such minima shall not be lower than any that may be established by the State of the Aerodrome, except when specifically approved by that State.

(h) **Fatigue management programme**

An operator shall establish and implement a fatigue management programme that ensures that all operator personnel involved in the operation and maintenance of aircraft do not carry out their duties when fatigued. The programme shall address flight and duty times and be included in the operations manual.

(i) **Passengers**

(1) An operator shall ensure that passengers are made familiar with the location and use of:

- (i) seat belts;
- (ii) emergency exits;
- (iii) life jackets, if the carriage of life jackets is prescribed;
- (iv) oxygen dispensing equipment, if use of oxygen is anticipated; and
- (v) other emergency equipment provided for individual use, including passenger emergency briefing cards.

(2) An operator shall ensure that all persons on board are aware of the location and general manner of use of the principal emergency equipment carried for collective use.

(3) An operator shall ensure that in an emergency during flight, passengers are instructed in such emergency action as may be appropriate to the circumstances.

(4) An operator shall ensure that during take-off and landing and whenever considered necessary, by reason of turbulence or any emergency occurring during flight, all passengers on board an aircraft are secured in their seats by means of the seat belts or harnesses provided.

OPS 2.230 Flight preparation

(a) **General**

The operator shall develop procedures to ensure that a flight is not commenced unless:



- (1) the aircraft is airworthy, duly registered and that appropriate certificates with respect thereto are aboard the aircraft;
- (2) the instruments and equipment installed in the aircraft are appropriate, taking into account the expected flight conditions;
- (3) any necessary maintenance has been performed in accordance with Subpart G;
- (4) the mass of the aeroplane and centre of gravity location are such that the flight can be conducted safely, taking into account the flight conditions expected;
- (5) any load carried is properly distributed and safely secured; and
- (6) the aeroplane operating limitations, contained in the flight manual, or its equivalent, will not be exceeded.

(b) **Operational flight planning**

An operator shall specify flight planning procedures to provide for the safe conduct of the flight based on considerations of aeroplane performance, other operating limitations and relevant expected conditions on the route to be followed and at the aerodromes concerned. These procedures shall be included in the operations manual.

(c) **Take-off Alternate aerodromes**

- (1) A take-off alternate aerodrome shall be selected and specified in the flight plan if either the meteorological conditions at the aerodrome of departure are below the applicable aerodrome landing minima for that operation or if it would not be possible to return to the aerodrome of departure for other reasons.
- (2) For aeroplanes only, the take-off alternate aerodrome shall be located within the following flight time from the aerodrome of departure:
 - (i) aeroplanes with two engines - one hour of flight time at a one-engine-inoperative cruising speed determined from the aircraft operating manual, calculated in ISA and still-air conditions using the actual take-off mass; or
 - (ii) aeroplanes with three or more engines - two hours of flight time at an all engines operating cruising speed determined from the aircraft operating manual, calculated in ISA and still-air conditions using the actual take-off mass.
- (3) For an aerodrome to be selected as a take-off alternate the available information shall indicate that, at the estimated time of use, the conditions will be at or above the applicable aerodrome operating minima for that operation.

(d) **Refuelling with passengers on board**

- (1) An aircraft shall not be refuelled when passengers are embarking, on board or disembarking unless it is attended by the pilot-in-command or other qualified personnel ready to initiate and direct an evacuation of the aircraft by the most practical and expeditious means available.



- (2) When refuelling with passengers embarking, on board or disembarking, two-way communication shall be maintained by the aeroplane's intercommunication system or other suitable means between the ground crew supervising the refuelling and the qualified personnel on board the aeroplane.
- (3) The aircraft shall not be refuelled with aviation gasoline (AVGAS) or wide-cut type fuel or a mixture of these types of fuel, or when an open line is used, when passengers are embarking, on board or disembarking.
- (4) In addition to (1) and (2) above, a helicopter shall not be refuelled when passengers are embarking, on board or disembarking if the rotor is turning.

(e) **Oxygen supply**

- (1) A flight to be operated at flight altitudes at which the cabin pressure in personnel compartments will be higher than 10 000 ft shall not be commenced unless sufficient stored breathing oxygen is carried to supply:
 - (i) all crew members and 10 per cent of the passengers for any period in excess of 30 minutes that the cabin pressure in compartments occupied by them will be between 10 000 ft and 13 000 ft; and
 - (ii) the crew and passengers for any period that the cabin pressure in compartments occupied by them will be greater than 13 000 ft.
- (2) A flight to be operated with a pressurized aircraft shall not be commenced unless a sufficient quantity of stored breathing oxygen is carried to supply all the crew members and passengers, as is appropriate to the circumstances of the flight being undertaken, in the event of loss of pressurization, for any period that the cabin pressure in any compartment occupied by them would be more than 10 000 ft. In addition, when an aircraft is operated at flight altitudes at which the atmospheric pressure is less than 376 hPa (25 000 ft), or which, if operated at flight altitudes at which the atmospheric pressure is more than 376 hPa (25 000 ft) and cannot descend safely within four minutes to a flight altitude at which the cabin pressure is equal to 13 000 ft, there shall be no less than a 10-minute supply for the occupants of the passenger compartment.

OPS 2.240 In-flight procedures

(a) **Use of oxygen**

- (1) All flight crew members, when engaged in performing duties essential to the safe operation of an aeroplane in flight, shall use breathing oxygen continuously whenever the circumstances prevail for which its supply has been required in OPS 2.230(e).
- (2) All flight crew members of pressurized aeroplanes operating above an altitude where the atmospheric pressure is less than 376 hPa (25 000 ft) shall have available at the flight duty station a quick-donning type of oxygen mask which will readily supply oxygen upon demand.

(b) **Flight recorder operation**

- (1) Flight recorders shall not be switched off during flight time.



- (2) To preserve flight recorder records, flight recorders shall be deactivated upon completion of flight time following an accident or incident. The flight recorders shall not be reactivated before their disposition as determined by the investigating authority.
- (3) The pilot-in-command, and/or the owner/operator, or in the case where it is leased, the lessee, shall ensure, to the extent possible, in the event the aeroplane becomes involved in an accident or incident, the preservation of all related flight recorder records, and if necessary the associated flight recorders, and their retention in safe custody pending their disposition as determined by the investigating authority.
- (4) Operational checks and evaluations of recordings from the flight recorder systems shall be conducted to ensure the continued serviceability of the recorders.

(c) **Procedure for rate of climb or descent**

Unless otherwise specified in an air traffic control instruction, to avoid unnecessary airborne collision avoidance system (ACAS II) resolution advisories in aircraft at or approaching adjacent altitudes or flight levels, pilots should consider using appropriate procedures to ensure that a rate of climb or descent of less than 8 m/s or 1 500 ft/min (depending on the instrumentation available) is achieved throughout the last 300 m (1 000 ft) of climb or descent to the assigned altitude or flight level, when made aware of another aircraft at or approaching an adjacent altitude or flight level.

OPS 2.250 Duties of pilot-in-command

- (a) The pilot-in-command shall ensure that the required checklists are complied with in detail.
- (b) The pilot-in-command shall be responsible for notifying the nearest appropriate authority by the quickest available means of any accident involving the aircraft, resulting in serious injury or death of any person or substantial damage to the aircraft or property. In the event that the pilot-in-command is incapacitated the operator shall take the forgoing action.
- (c) The pilot-in-command shall be responsible for reporting all known or suspected defects in the aircraft, to the operator, at the termination of the flight.
- (d) The pilot-in-command shall be responsible for the journey log book or the general declaration containing the required information.

OPS 2.260 Cabin baggage (take-off and landing)

An operator shall specify procedures to ensure that all baggage carried onto an aircraft and taken into the passenger cabin is adequately and securely stowed.

OPS 2.270 Fuel requirements - Aeroplane

- (a) An aeroplane shall carry a sufficient amount of usable fuel to complete the planned flight safely and to allow for deviations from the planned operation. The amount of usable fuel to be carried shall, as a minimum, be based on:
 - (1) fuel consumption data:
 - (i) provided by the aeroplane manufacturer; or



- (ii) if available, current aeroplane-specific data derived from a fuel consumption monitoring system; and
- (2) the operating conditions for the planned flight including:
- (i) anticipated aeroplane mass;
 - (ii) Notices to Airmen;
 - (iii) current meteorological reports or a combination of current reports and forecasts;
 - (iv) air traffic services procedures, restrictions and anticipated delays; and
 - (v) the effects of deferred maintenance items and/or configuration deviations.

Note: Where no specific fuel consumption data exists for the precise conditions of the flight, the aircraft may be operated in accordance with estimated fuel consumption data.

(b) The pre-flight calculation of usable fuel required shall include:

- (1) *taxi fuel*, which shall be the amount of fuel expected to be consumed before take-off taking into account local conditions at the departure aerodrome and auxiliary power unit (APU) fuel consumption;
- (2) *trip fuel*, which shall be the amount of fuel required to enable the aeroplane to fly from take-off until landing at the destination aerodrome taking into account the operating conditions of (a) above;
- (3) *contingency fuel*, which shall be the amount of fuel required to compensate for unforeseen factors. It shall be not less than five per cent of the planned trip fuel;

Note: Unforeseen factors are those which could have an influence on the fuel consumption to the destination aerodrome, such as deviations of an individual aeroplane from the expected fuel consumption data, deviations from forecast meteorological conditions, extended delays and deviations from planned routings and/or cruising levels.

- (4) *destination alternate fuel*, which shall be:
- (i) where a destination alternate aerodrome is required, the amount of fuel required to enable the aeroplane to:
 - (A) perform a missed approach at the destination aerodrome;
 - (B) climb to the expected cruising altitude;
 - (C) fly the expected routing;
 - (D) descend to the point where the expected approach is initiated; and
 - (E) conduct the approach and landing at the destination alternate aerodrome; or



- (ii) where a flight is operated without a destination alternate aerodrome, the amount of fuel required to enable the aeroplane to fly for 15 minutes at holding speed at 450 m (1 500 ft) above destination aerodrome elevation in standard conditions; or
- (iii) where the aerodrome of intended landing is an isolated aerodrome:
 - (A) for a reciprocating engine aeroplane, the amount of fuel required to fly for 45 minutes plus 15 per cent of the flight time planned to be spent at cruising level, including final reserve fuel, or two hours, whichever is less; or
 - (B) for a turbine-engined aeroplane, the amount of fuel required to fly for two hours at normal cruise consumption above the destination aerodrome, including final reserve fuel;
- (5) *final reserve fuel*, which shall be the amount of fuel on arrival at the destination alternate aerodrome, or the destination aerodrome when no destination alternate aerodrome is required:
 - (i) for a reciprocating engine aeroplane, the amount of fuel required to fly for 45 minutes; or
 - (ii) for a turbine-engined aeroplane, the amount of fuel required to fly for 30 minutes at holding speed at 450 m (1 500 ft) above aerodrome elevation in standard conditions;
- (6) *additional fuel*, which shall be the supplementary amount of fuel required to enable the aircraft to descend as necessary and proceed to land at an alternate aerodrome in the event of engine failure or loss of pressurization based on the assumption that such a failure occurs at the most critical point along the route;
- (7) *discretionary fuel*, which shall be the extra amount of fuel to be carried at the discretion of the pilot-in-command.
- (c) Operators should determine one final reserve fuel value for each aeroplane type and variant in their fleet rounded up to an easily recalled figure.
- (d) The use of fuel after flight commencement for purposes other than originally intended during pre-flight planning shall require a re-analysis and, if applicable, adjustment of the planned operation.

Note: Nothing in OPS 2.270 precludes the in-flight amendment of a flight plan to re-plan that flight to another aerodrome, provided that these requirements can be complied with from the point where the flight is re-planned.



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**SUBPART D****AIRCRAFT PERFORMANCE OPERATING LIMITATIONS****OPS 2.310 Aeroplanes**

- (a) An aeroplane shall be operated in compliance with the terms of its certificate of airworthiness and within the approved operating limitations contained in its flight manual.
- (b) The Authority, as the State of Registry, shall take such precautions as are reasonably possible to ensure that the general level of safety contemplated by these provisions is maintained under all expected operating conditions, including those not covered specifically by the provisions of this Subpart.
- (c) A flight shall not be commenced unless the performance information provided in the flight manual indicates that the Standards of this Subpart can be complied with for the flight to be undertaken.
- (d) In applying the Standards of this Subpart, account shall be taken of all factors that significantly affect the performance of the aeroplane (such as: mass, operating procedures, the pressure altitude appropriate to the elevation of the aerodrome, temperature, wind, runway gradient and condition of runway, i.e. presence of slush, water and/or ice, for landplanes, water surface condition for seaplanes). Such factors shall be taken into account directly as operational parameters or indirectly by means of allowances or margins, which may be provided in the scheduling of performance data or in the comprehensive and detailed code of performance in accordance with which the aeroplane is being operated.

OPS 2.320 Mass limitations

- (a) The mass of the aeroplane at the start of take-off shall not exceed the mass at which OPS 2.330 is complied with, nor the mass at which OPS 2.340 and OPS 2.350 are complied with, allowing for expected reductions in mass, for such fuel jettisoning or use of alternate aerodromes as the flight proceeds.
- (b) In no case shall the mass at the start of take-off exceed the maximum take-off mass specified in the flight manual for the pressure altitude appropriate to the elevation of the aerodrome, and if used as a parameter to determine the maximum take-off mass, any other local atmospheric condition.
- (c) In no case shall the estimated mass for the expected time of landing at the aerodrome of intended landing and at any destination alternate aerodrome, exceed the maximum landing mass specified in the flight manual for the pressure altitude appropriate to the elevation of those aerodromes, and if used as a parameter to determine the maximum landing mass, any other local atmospheric condition.
- (d) In no case shall the mass at the start of take-off, or at the expected time of landing at the aerodrome of intended landing and at any destination alternate aerodrome, exceed the relevant maximum masses at which compliance has been demonstrated with the applicable noise certification Standards in ICAO Annex 16, Volume I, unless otherwise authorized in exceptional circumstances for a certain aerodrome or a runway where there is no noise disturbance problem, by the competent authority of the State in which the aerodrome is situated.

**OPS 2.330 Take-off**

- (a) The aeroplane shall be able, in the event of a critical engine failing at any point in the take-off, either to discontinue the take-off and stop within either the accelerate-stop distance available or the runway available, or to continue the take-off and clear all obstacles along the flight path by an adequate margin until the aeroplane is in a position to comply with OPS 2.340.
- (b) In determining the length of the runway available, account shall be taken of the loss, if any, of runway length due to alignment of the aeroplane prior to take-off.

OPS 2.340 En route — one engine inoperative

The aeroplane shall be able, in the event of the critical engine becoming inoperative at any point along the route or planned diversions therefrom, to continue the flight to an aerodrome at which the Standard of OPS 2.350 can be met, without flying below the minimum obstacle clearance altitude at any point.

OPS 2.350 Landing

The aeroplane shall, at the aerodrome of intended landing and at any alternate aerodrome, after clearing all obstacles in the approach path by a safe margin, be able to land, with assurance that it can come to a stop or, for a seaplane, to a satisfactorily low speed, within the landing distance available. Allowance shall be made for expected variations in the approach and landing techniques, if such allowance has not been made in the scheduling of performance data.

**SUBPART E****AIRCRAFT INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS****OPS 2.400 General**

Where a master minimum equipment list (MMEL) is established for the aircraft type, the operator shall include in the operations manual a minimum equipment list (MEL) approved by the Authority, as the State of Registry of the aeroplane, which will enable the pilot-in-command to determine whether a flight may be commenced or continued from any intermediate stop should any instrument, equipment or systems become inoperative.

OPS 2.420 Aeroplanes on all flights

In addition to the requirements contained in Part I, Subpart E, an aeroplane shall be equipped with:

- (a) accessible and adequate medical supplies appropriate to the number of passengers the aeroplane is authorized to carry.
- (b) first-aid kits.
- (c) a safety harness for each flight crew seat. The safety harness for each pilot seat shall incorporate a device which will automatically restrain the occupant's torso in the event of rapid deceleration;

Note 1: The safety harness for each pilot seat should incorporate a device to prevent a suddenly incapacitated pilot from interfering with the flight controls.

Note 2: Safety harness includes shoulder straps and a seat belt which may be used independently.

- (d) means of ensuring that the following information and instructions are conveyed to passengers:
 - (1) when seat belts are to be fastened;
 - (2) when and how oxygen equipment is to be used if the carriage of oxygen is required;
 - (3) restrictions on smoking;
 - (4) location and use of life jackets or equivalent individual flotation devices where their carriage is required;
 - (5) location of emergency equipment; and
 - (6) location and method of opening emergency exits.

OPS 2.425 Manuals and checklists

An aeroplane shall carry:

- (a) the operations manual, or those parts of it that pertain to flight operations, including operating procedures for conducting instrument approaches;



- (b) the flight manual, or other documents containing required performance data and any other information necessary for the operation of the aeroplane within the terms of its certificate of airworthiness, unless these data are available in the operations manual; and
- (c) the required checklists.

OPS 2.430 Cockpit voice recorder - Aeroplane

- (a) The following aeroplanes shall be equipped with a CVR:
 - (1) aeroplanes with an MCTOM of more than 27 000 kg; and
 - (2) aeroplanes with an MCTOM of more than 5 700 kg:
 - (i) certified for operation with a minimum crew of at least two pilots;
 - (ii) equipped with turbojet engine(s) or more than one turboprop engine; and
 - (iii) for which a type certificate is first issued on or after 01 January 2016.
- (b) The CVR shall be capable of retaining data recorded during at least the preceding 30 minutes of operation or 2 hours of operation after 01 January 2016.
- (c) [All aeroplanes of a maximum certificated take-off mass of over 27 000 kg for which the individual certificate of airworthiness is first issued on or after 01 January 2021 shall be equipped with a CVR capable of retaining the information recorded during at least the last twenty five hours of its operation.]
- (d) 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, the audio signals received from each boom and mask microphone in use; and
 - (4) voice or audio signals identifying navigation or approach aids introduced into a headset or speaker.
- (e) The CVR shall start automatically 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.
- (f) In addition to (d) above, 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.
- (g) The CVR shall have a device to assist in locating it in water.
- (h) The use of the following CVR types is not permitted;



- (1) Magnetic tape CVRs;
- (2) Wire CVR.

OPS 2.431 Cockpit voice recorder – Helicopter

- (a) Helicopters with an MCTOM of more than 7 000 kg shall be equipped with a CVR.
- (b) For helicopters not equipped with a FDR, at least main rotor speed shall be recorded on the CVR.
- (c) The CVR shall be capable of retaining data recorded during at least the preceding 30 minutes or 2 hours of operation after 01 January 2016.
- (d) 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 cockpit, including, without interruption, the audio signals received from each crew microphone; and
 - (4) voice or audio signals identifying navigation or approach aids introduced into a headset or speaker.
- (e) The CVR shall start automatically 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.
- (f) In addition to (e), 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.
- (g) The CVR shall have a device to assist in locating it in water.
- (h) The use of magnetic tape and wire CVRs is not permitted.

OPS 2.435 Flight data recorder - Aeroplanes

- (a) All aeroplanes of a maximum certificated take-off mass of over 5 700 kg for which the individual certificate of airworthiness is first issued on or after 1 January 2005 shall be equipped with a Type IA FDR.
- (b) All aeroplanes of a maximum certificated take-off mass of over 27 000 kg for which the individual certificate of airworthiness is first issued on or after 1 January 1989 shall be equipped with a Type I FDR.
- (c) Aeroplanes with an MCTOM of more than 5 700 kg and first issued with an individual C of A on or after 01 January 2016 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.



- (d) The FDR shall record the parameters required to determine accurately the aeroplane flight path, speed, attitude, engine power, configuration and operation of lift and drag devices and be capable of retaining data recorded during at least the preceding 25 hours.
- (e) Data shall be obtained from aeroplane sources that enable accurate correlation with information displayed to the flight crew.
- (f) 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.
- (g) The FDR shall have a device to assist in locating it in water.
- (h) The use of the following FDR types is not permitted;
 - (1) engraving metal foil FDRs;
 - (2) analogue FDRs using frequency modulation (FM);
 - (3) photographic film FDRs; and
 - (4) magnetic tape FDRs after 01 January, 2016.

Note 1: The documentation requirement concerning FDR and ADRS parameters provided by operators to accident investigation authorities should be in electronic format and take account of industry specifications.

- (i) The requirements for FDRs and recording parameters shall meet ICAO Annex 6, Part II, Appendix 2.3.

OPS 2.436 Flight data recorder – Helicopter

- (a) Helicopters with a MCTOM of more than 7 000 kg, or having a passenger configuration of more than nineteen, and first issued with an individual C of A on or after 01 January 1989 shall be equipped with a Type IV FDR.
- (b) Helicopters with a MCTOM of more than 3 175 kg and first issued with an individual C of A on or after 1 January 2016 shall be equipped with a Type IVA 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.
- (c) The FDR shall record the parameters required to determine accurately the helicopter flight path, speed, attitude, engine power, configuration and operation and be capable of retaining data recorded during at least the preceding 10 hours.
- (d) Data shall be obtained from helicopter sources that enable accurate correlation with information displayed to the flight crew.
- (e) The FDR shall start automatically 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.
- (f) The FDR shall have a device to assist in locating it in water.



- (g) The requirements for FDRs and recording parameters shall meet ICAO Annex 6, Part III, Appendix 4.
- (h) The use of the following FDR types is not permitted;
 - (1) engraving metal foil FDRs;
 - (2) analogue FDRs using frequency modulation (FM);
 - (3) photographic film FDRs; and
 - (4) magnetic tape FDRs after 01 January, 2016.

Note: The documentation requirement concerning FDR and ADRS parameters provided by operators to accident investigation authorities should be in electronic format and take account of industry specifications.

OPS 2.440 Data link recording

- (a) Aircraft first issued with an individual C of A on or after 01 January 2016 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 readily retrieving that data. The recording method shall allow the data to match the data recorded on the ground and also be correlated to the recorded cockpit audio.
- (c) The recorder shall be capable of retaining data recorded equal to the duration of the CVR.



- (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 OPS 2.430(d) and (e).

OPS 2.445 Flight data and cockpit voice combination recorder

Compliance with CVR requirements and FDR requirements may be achieved by:

- (a) one flight data and cockpit voice combination recorder if the aircraft has to be equipped with a CVR or an FDR; or
- (b) two flight data and cockpit voice combination recorders if the aircraft has to be equipped with a CVR and an FDR.

OPS 2.450 Aeroplanes on long-range over-water flights

- (a) The operator of an aeroplane operated on an extended flight over water shall determine the risks to survival of the occupants of the aeroplane in the event of a ditching. The operator shall take into account the operating environment and conditions such as, but not limited to, sea state and sea and air temperatures, the distance from land suitable for making an emergency landing, and the availability of search and rescue facilities. Based upon the assessment of these risks, the operator shall, in addition to other equipment required by this Subpart, ensure that the aeroplane is appropriately equipped with:
 - (1) life-saving rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency, provided with such lifesaving equipment, including means of sustaining life, as is appropriate to the flight to be undertaken; and
 - (2) equipment for making the distress signals described in ICAO Annex 2.
- (b) each life jacket and equivalent individual flotation device shall be equipped with a means of electric illumination for the purpose of facilitating the location of persons, except for individual flotation devices other than life jackets.

OPS 2.455 Oxygen supply

- (a) Pressurized aeroplanes intended to be operated at flight altitudes at which the atmospheric pressure is less than 376 hPa (25 000 ft) shall be equipped with a device to provide positive warning to the flight crew of any dangerous loss of pressurization.
- (b) An aircraft intended to be operated at flight altitudes at which the atmospheric pressure is less than 700 hPa (10 000 ft) in personnel compartments shall be equipped with oxygen storage and dispensing apparatus capable of storing and dispensing the oxygen supplies required.
- (c) An aircraft intended to be operated at flight altitudes at which the atmospheric pressure is less than 700 hPa (10 000 ft) but which is provided with means of maintaining pressures greater than 700 hPa in personnel compartments shall be provided with oxygen storage and dispensing apparatus capable of storing and dispensing the oxygen supplies required.

**OPS 2.460 Aeroplanes in icing conditions**

Aeroplanes shall be equipped with suitable de-icing and/or anti-icing devices when operated in circumstances in which icing conditions are reported to exist or are expected to be encountered.

OPS 2.465 Aeroplanes operated in accordance with the instrument flight rules

In addition to the requirements contained in OPS 2.407, aeroplanes when operated in accordance with the instrument flight rules or when the aeroplane cannot be maintained in a desired attitude without reference to one or more flight instruments, shall be equipped with two independent altitude measuring and display systems.

OPS 2.470 Emergency power supply for electrically operated attitude indicating instruments

- (a) Aeroplanes of a maximum certificated take-off mass of over 5 700 kg newly introduced into service after 01 January 1975 shall be fitted with an emergency power supply, independent of the main electrical generating system, for the purpose of operating and illuminating, for a minimum period of 30 minutes, an attitude indicating instrument (artificial horizon), clearly visible to the pilot-in-command. The emergency power supply shall be automatically operative after the total failure of the main electrical generating system and clear indication shall be given on the instrument panel that the attitude indicator(s) is being operated by emergency power.

Note: Aircraft with advanced cockpit automation systems (glass cockpits) should have system redundancy that provides the flight crew with attitude, heading, airspeed and altitude indications in case of failure of the primary system or display.

- (b) Instruments that are used by any one pilot shall be so arranged as to permit the pilot to see their indications readily from his or her station, with the minimum practicable deviation from the position and line of vision normally assumed when looking forward along the flight path.

OPS 2.475 Weather-detecting equipment

Pressurized aeroplanes when carrying passengers shall be equipped with operative weather-detecting equipment capable of detecting thunderstorms whenever such aeroplanes are being operated in areas where such conditions may be expected to exist along the route either at night or under instrument meteorological conditions.

OPS 2.478 Aeroplanes operated above 15 000 m (49 000 ft) - radiation indicator

Aeroplanes intended to be primarily operated above 15 000 m (49 000 ft) should carry equipment to measure and indicate continuously the dose rate of total cosmic radiation being received (i.e. the total of ionizing and neutron radiation of galactic and solar origin) and the cumulative dose on each flight. The display unit of the equipment shall be readily visible to a flight crew member.

OPS 2.480 Passenger and cabin crew seats

- (a) Aeroplanes for which the individual certificate of airworthiness is first issued on or after 01 January 1981 shall be equipped with a forward or rearward facing seat (within 15 degrees of the longitudinal axis of the aeroplane), fitted with a safety harness for the use of each cabin crew member required to effect a safe and expeditious emergency evacuation.
- (b) Cabin crew seats provided shall be located near floor level and other emergency exits as required by the Authority, as the State of Registry, for emergency evacuation.

**OPS 2.485 Airborne collision avoidance system (ACAS)**

All turbine-engined aeroplanes of a maximum certificated take-off mass in excess of 15 000 kg or authorized to carry more than 30 passengers, for which the individual airworthiness certificate is first issued after 01 January 2007, shall be equipped with an airborne collision avoidance system (ACAS II).

OPS 2.490 Pressure-altitude reporting transponder

Aeroplanes shall be equipped with a pressure-altitude reporting transponder which operates in accordance with the relevant provisions of ICAO Annex 10, Volume IV.

OPS 2.495 Microphones

All flight crew members required to be on flight deck duty shall communicate through boom or throat microphones below the transition level/altitude.

OPS 2.497 Ground proximity warning systems (GPWS)

In addition to CAR OPS 2.418;

- (a) All turbine-engined aeroplanes of a maximum certificated take-off mass in excess of 5 700 kg shall be equipped with a ground proximity warning system which has a forward-looking terrain avoidance function.
- (b) A ground proximity warning system installed in turbine-engined aeroplanes of a maximum certificated take-off mass in excess of 5 700 kg for which the individual certificate of airworthiness was first issued after 1 January 2011 shall provide, as a minimum, warnings of at least the following circumstances;
 - (1) excessive descent rate;
 - (2) excessive terrain closure rate;
 - (3) excessive altitude loss after take-off or go-around;
 - (4) unsafe terrain clearance while not in landing configuration;
 - (i) gear not locked down;
 - (ii) flaps not in a landing position; and
 - (5) excessive descent below the instrument glide path.

**SUBPART F****AIRCRAFT COMMUNICATION AND NAVIGATION EQUIPMENT****OPS 2.510 Communication equipment**

In addition to the requirements OPS 2.501, an aircraft shall be provided with radio communication equipment capable of:

- (a) conducting two-way communication for aerodrome control purposes;
- (b) receiving meteorological information at any time during flight; and
- (c) conducting two-way communication at any time during flight with at least one aeronautical station and with such other aeronautical stations and on such frequencies as may be prescribed by the appropriate authority.

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

OPS 2.520 Installation

The equipment installation shall be such that the failure of any single unit required for either communications, navigation or surveillance purposes or both will not result in the failure of another unit required for communications, navigation or surveillance purposes.

OPS 2.530 Electronic navigation data management

- (a) An operator of an aeroplane shall not employ electronic navigation data products that have been processed for application in the air and on the ground unless the State of Registry has approved the operator's procedures for ensuring that the process applied and the products delivered have met acceptable standards of integrity and that the products are compatible with the intended function of the equipment that will use them. The State of Registry shall ensure that the operator continues to monitor both process and products.
- (b) An operator shall implement procedures that ensure the timely distribution and insertion of current and unaltered electronic navigation data to all aeroplanes that require it.



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**SUBPART G****AIRCRAFT MAINTENANCE****OPS 2.610 Operator's maintenance responsibilities**

An operator shall comply with the requirements of Part I, Subpart G.

OPS 2.620 Operator's maintenance control manual

An operator shall provide a maintenance control manual, as specified in OPS 2.810, for the use and guidance of maintenance and operations personnel.

OPS 2.630 Maintenance programme

- (a) An operator shall provide, for the use and guidance of maintenance and operational personnel concerned, a maintenance programme, acceptable to the State of Registry, containing the information required by OPS 2.820. The design and application of the operator's maintenance programme shall observe Human Factors principles according to the State of Registry's guidance material.
- (b) Copies of all amendments to the maintenance programme shall be furnished promptly to all organizations or persons to whom the maintenance programme has been issued.

OPS 2.640 Continuing airworthiness information

- (a) An operator of an aeroplane of a maximum certificated take-off mass in excess of 5 700 kg shall, as prescribed by the Authority, as the State of Registry, ensure that the information resulting from maintenance and operational experience with respect to continuing airworthiness, is transmitted to the organization responsible for type design of that aeroplane.
- (b) The owner of a helicopter over 3 175 kg maximum certificated take-off mass, or in the case where it is leased, the lessee, shall, as required by the Authority, as the State of Registry, ensure that the information resulting from maintenance and operational experience with respect to continuing airworthiness is transmitted to the organization responsible for type design of that helicopter.

OPS 2.650 Maintenance release

- (a) A maintenance release shall be completed and signed, as prescribed by the Authority, as the State of Registry, to certify that the maintenance work has been performed in accordance with the maintenance programme or other data and procedures acceptable to the State of Registry.
- (b) A maintenance release shall contain a certification including:
 - (1) basic details of the maintenance performed;
 - (2) the date such maintenance was completed;
 - (3) when applicable, the identity of the approved maintenance organization; and
 - (4) the identity of the person or persons signing the release.



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SUBPART H

AIRCRAFT FLIGHT CREW

OPS 2.710 Composition of the flight crew

- (a) For each flight the operator shall designate a pilot to act as pilot-in-command.
- (b) When a separate flight engineer's station is incorporated in the design of an aeroplane, the flight crew shall include at least one flight engineer especially assigned to that station, unless the duties associated with that station can be satisfactorily performed by another flight crew member, holding a flight engineer licence, without interference with regular duties.

OPS 2.720 Flight crew member emergency duties

An operator shall, for each type of aeroplane, assign to all flight crew members the necessary functions they are to perform in an emergency or in a situation requiring emergency evacuation. Recurrent training in accomplishing these functions shall be contained in the operator's training programme and shall include instruction in the use of all emergency and life-saving equipment required to be carried, and drills in the emergency evacuation of the aeroplane.

OPS 2.730 Flight crew member training programmes

- (a) An operator shall establish and maintain a training programme that is designed to ensure that a person who receives training acquires and maintains the competency to perform assigned duties, including skills related to human performance.
- (b) Ground and flight training programmes shall be established, either through internal programmes or through a training services provider, and shall include or make reference to a syllabus for those training programmes in the company operations manual.
- (c) The training programme shall include training to competency for all equipment installed.

Note: Flight simulators should be used to the maximum extent practicable for initial and annual recurrent training.

OPS 2.740 Qualifications

- (a) Flight crew member licensing

An operator shall:

- (1) ensure that each flight crew member assigned to duty holds a valid licence issued by the State of Registry, or if issued by another Contracting State, rendered valid by the State of Registry;
- (2) ensure that flight crew members are properly rated; and
- (3) be satisfied that flight crew members are competent to carry out assigned duties.

- (b) Training

The operator of an aeroplane equipped with an airborne collision avoidance system (ACAS II)



shall ensure that each flight crew member has been appropriately trained to competency in the use of ACAS II equipment and the avoidance of collisions.

(c) Recent experience

(1) pilot-in-command

An operator shall not assign a pilot to act as pilot-in-command of an aeroplane unless that pilot has made at least three take-offs and landings within the preceding 90 days on the same type of aeroplane or in a flight simulator approved for the purpose.

(2) Co-pilot

An operator shall not assign a co-pilot to operate at the flight controls of an aeroplane during take-off and landing unless that pilot has made at least three take-offs and landings within the preceding 90 days on the same type of aeroplane or in a flight simulator approved for the purpose.

(d) Pilot proficiency checks

An operator shall ensure that piloting technique and the ability to execute emergency procedures is checked periodically in such a way as to demonstrate the pilot's competence. Where the operation may be conducted under the instrument flight rules, an operator shall ensure that the pilot's competence to comply with such rules is demonstrated to either a check pilot of the operator or a representative of the State issuing the pilot licence.



SUBPART I

MANUALS, LOGS AND RECORDS

OPS 2.810 Operator's maintenance control manual

An operator's maintenance control manual shall be developed according to industry codes of practice or to the Authority's guidance material, and shall at a minimum contain information about;

- (a) the means for complying with the aircraft maintenance procedures;
- (b) the means of recording the names and duties of the person or persons required;
- (c) the maintenance programme;
- (d) the methods used for the completion and retention of the operator's required maintenance records;
- (e) the procedures for complying with the service information reporting requirements;
- (f) the procedures for implementing action resulting from mandatory continuing airworthiness information;
- (g) a system of analysis and continued monitoring of the performance and efficiency of the maintenance programme, in order to correct any deficiency in that programme;
- (h) the aircraft types and models to which the manual applies;
- (i) the procedures for ensuring that unserviceabilities affecting airworthiness are recorded and rectified; and
- (j) procedures for advising the Authority, as the State of Registry of significant in-service occurrences.

Note: The design of the manual should observe Human Factors principles.

OPS 2.820 Maintenance programme

- (a) A maintenance programme for each aeroplane shall contain the following information:
 - (1) maintenance tasks and the intervals at which these are to be performed, taking into account the anticipated utilization of the aeroplane;
 - (2) when applicable, a continuing structural integrity programme;
 - (3) procedures for changing or deviating from (a) and (b) above as approved by the State of Registry; and
 - (4) when applicable and approved by the State of Registry, condition monitoring and reliability programme descriptions for aircraft systems, components and engines.
- (b) Maintenance tasks and intervals that have been specified as mandatory in approval of the type design, or approved changes to the maintenance programme, shall be identified as such.



Note 1: The maintenance programme should be based on maintenance programme information made available by the State of Design or by the organization responsible for the type design, and any additional applicable experience.

Note 2: The design of the programme shall observe Human Factors principles.

OPS 2.830 Technical log

A Technical log for the aircraft shall be provided in accordance with the requirements of CAR AIR.

**SUBPART J****SECURITY****OPS 2.910 Security programme**

Note: General Aviation operators, operating under CAR OPS 2, Part II, should establish, implement and maintain a written operator security programme that meets the requirements of the National Civil Aviation Security Programme of the Republic of San Marino. This security programme may be incorporated in the Operations Manual.

OPS 2.920 Flight crew compartment security

In an aircraft which is equipped with a flight crew compartment door, this door shall be capable of being locked, and means shall be provided by which the cabin crew can notify the flight crew in the event of suspicious activity or security breaches in the cabin.



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**SUBPART K****CABIN CREW****OPS 2.1010 Assignment of emergency duties**

The requirement for cabin crew for each type of aircraft shall be determined by the operator, based on seating capacity or the number of passengers carried, in order to effect a safe and expeditious evacuation of the aircraft, and the necessary functions to be performed in an emergency or a situation requiring emergency evacuation. The operator shall assign these functions for each type of aircraft.

OPS 2.1020 Cabin crew at emergency evacuation stations

When cabin crew are utilised by an operator, each cabin crew member assigned to emergency evacuation duties shall occupy a seat provided during take-off and landing and whenever the pilot-in-command so directs.

OPS 2.1030 Protection of cabin crew during flight

Each cabin crew member shall be seated with seat belt or, when provided, safety harness fastened during take-off and landing and whenever the pilot-in-command so directs.

OPS 2.1040 Training

An operator shall ensure that a training programme is completed by all persons before being assigned as a cabin crew member.

Note: An operator should establish and maintain a cabin crew training programme that is designed to ensure that persons who receive training acquire the competency to perform their assigned duties and includes or makes reference to a syllabus for the training programme in the company operations manual. The training programme should include Human Factors training.



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