

# **GHANA CIVIL AVIATION (FLIGHT STANDARDS) DIRECTIVES**



## **PART 8 – OPERATIONS**

**NOVEMBER 2018**

## INTRODUCTION

Part 8 presents regulatory requirements for the operation of aircraft in Ghana, based upon the requirements of ICAO Annexes 2, 6 and 8. It prescribes the requirements for operations conducted by airmen certificated in Ghana while operating aircraft registered in Ghana, as well as operations of foreign registered aircraft by Ghanaian AOC holders, and operations of aircraft within Ghana by airmen or AOC holders of a foreign State.

Part 8 also applies to operations outside of Ghana by all Ghanaian pilots and operators unless compliance would result in a violation of the laws of the foreign State in which the operation is conducted.

These Directives apply to all aircraft, except where superseded by the more stringent requirements put upon entities engaged in commercial air transport and upon AOC holders.

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## 8.1 GENERAL

### 8.1.1 APPLICABILITY

- (1) Part 8 prescribes the requirements for:
  - (a) Operations conducted by flight crewmembers certified in Ghana while operating aircraft registered in Ghana;
  - (b) Operations of foreign registered aircraft by Ghanaian AOC holders;
  - (c) Operations of aircraft within Ghana by flight crewmember or AOC holders of a foreign State;
  - (d) International Operations – Helicopters;
  - (e) International General Aviation Operations – Aeroplanes; and
  - (f) Corporate Aviation Operations operated by pilots employed for the purpose of flying the aircraft.
- (2) For operations outside of Ghana, all pilots and operators licensed or certified by the Authority shall comply with these requirements unless compliance would result in a violation of the laws of the foreign State in which the operation is conducted.

**Note:** Where a particular requirement is applicable only to a particular segment of aviation operations, it will be identified by a reference to those particular operations, such as “commercial air transport” or “small non-turbojet or turbofan aeroplanes”.

### 8.1.2 DEFINITIONS

For the purpose of Part 8, the following definitions shall apply-

**Advisory airspace.** An airspace of defined dimensions, or designated route, within which air traffic advisory service is available.

**Aerial work.** An aircraft operation in which an aircraft is used for specialised services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement etc.

**Aerobatic flight.** Manoeuvres intentionally performed by an aircraft involving an abrupt change in its attitude, an abnormal attitude, or an abnormal variation in speed.

**Aerodrome.** A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.



**Aerodrome operating minima.** The limits of usability of an aerodrome for:

- a) take-off, expressed in terms of runway visual range and/or visibility and, if necessary, cloud conditions;
- b) landing in precision approach and landing operations, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H) as appropriate to the category of the operation;
- c) landing in approach and landing operations with vertical guidance, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H); and
- d) landing in non-precision approach and landing operations, expressed in terms of visibility and/or runway visual range, minimum descent altitude/height (MDA/H) and, if necessary, cloud conditions.

**Aeroplane.** A power - driven heavier - than- air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.

**Air navigation facility.** Any facility used in, available for use in, or designed for use in aid of air navigation, including aerodromes, landing areas, lights, any apparatus or equipment for disseminating weather information, for signalling, for radio directional finding, or for radio or other electrical communication, and any other structure or mechanism having a similar purpose for guiding or controlling flight in the air or the landing and take-off of aircraft.

**Aircraft.** Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

**Aircraft operating manual.** A manual, acceptable to the State of the Operator, containing normal, abnormal and emergency procedures, checklists, limitations, performance information, details of the aircraft systems and other material relevant to the operation of the aircraft.

*Note. — The aircraft operating manual is part of the operations manual.*

**Air operator certificate (AOC).** A certificate authorizing an operator to carry out specified commercial air transport operations.

**Alternate aerodrome.** An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing. Alternate aerodromes include the following:

**Take-off alternate.** An alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.

**En-route alternate.** An aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while en route.

**EDTO en-route alternate.** A suitable and appropriate alternate aerodrome at which an aeroplane would be able to land after experiencing an engine shutdown or other abnormal or emergency condition while en route in an EDTO operation.

**Destination alternate.** An alternate aerodrome to which an aircraft may proceed should it become either impossible or inadvisable to land at the aerodrome of intended landing.

*Note.* — The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for that flight.

**Alternate Heliport:** A heliport specified in the flight plan to which a flight may proceed when it becomes inadvisable to land at the heliport of intended landing.

*Note:* - An Alternate Heliport may be the heliport of departure.

**Approach and landing operations using instrument approach procedures.** Instrument approach and landing operations are classified as follows:

**Non-precision approach and landing operations.** An instrument approach and landing which utilizes lateral guidance but does not utilize vertical guidance.

**Approach and landing operations with vertical guidance.** An instrument approach and landing which utilizes lateral and vertical guidance but does not meet the requirements established for precision approach and landing operations.

**Precision approach and landing operations.** An instrument approach and landing using precision lateral and vertical guidance with minima as determined by the category of operation.

*Note.* — Lateral and vertical guidance refers to the guidance provided either by:  
a) a ground-based navigation aid; or  
b) computer generated navigation data.

*Categories of precision approach and landing operations:*

**Category I (CAT I) operation.** A precision instrument approach and landing with 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.

**Category II (CAT II) operation.** A precision instrument approach and landing with 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; and

**Category III (CAT III) operation.** A precision instrument approach and landing with:  
a) a decision height lower than 30 m (100 ft.) or no decision height; and  
b) a runway visual range not less than 300 m or no runway visual range limitations.

*Note.*— Where decision height (DH) and runway visual range (RVR) fall into different categories of operation, the instrument approach and landing 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 III but with an RVR in the range of CAT III would be considered a CAT III 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). This does not apply if the RVR and/or DH has been approved as operational credits.*

**Approach and Landing Phase - Helicopters:** That part of the flight from 300m (1000 ft.) above the elevation of the FATO if the flight is planned to exceed this height or from the commencement of the descent in the other cases, to landing or to the balked landing point.

**Cabin crew member.** A crew member who performs, in the interest of safety of passengers, duties assigned by the operator or the pilot-in-command of the aircraft, but who shall not act as a flight crew member.

**Calendar day.** The period of elapsed time, using Co-ordinated Universal Time or local time that begins at midnight and ends 24 hours later in the next midnight.

**Cargo.** Any property carried out on an aircraft other than mail and accompanied or mishandled baggage.

*Note. – This definition differs from the definition of “Cargo” given in Annex 9 – Facilitation.*

**Check Person (aircraft).** A person who is qualified, and permitted, to conduct an evaluation in an aircraft, in a flight simulator, or in flight training device for a particular type aircraft, for a particular AOC holder except for skills test for the initial issue of type qualification and instrument rating.

**Check Person (simulator).** A person who is qualified to conduct an evaluation, but only in a flight simulator or in a flight training device for a particular type aircraft, for a particular AOC holder.

**Command and Control Link (C2):** The data link between the remotely pilot aircraft and the remote pilot station for the purposes of managing the flight.

**Commercial air transport operation.** An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.

**Configuration deviation list (CDL).** A list established by the organization responsible for the type design with the approval of the State of Design which identifies any external parts of an aircraft type which may be missing at the commencement of a flight, and which contains, where necessary, any information on associated operating limitations and performance correction.

**Congested Area:** In relation to a city, town or settlement, any area which is substantially used for residential, commercial or recreational purposes.

**Controlled flight.** Any flight which is subject to an air traffic control clearance.

**Continuous descent final approach (CFDA).** A technique, consistent with stabilized approach procedures, for flying the final approach segments (FAS) of

an instrument non-precision approach (NPA) procedure as a continuous descent, without level-off, from an altitude/height at or above the final approach fix altitude/ height to a point approximately 15m (50ft) above the landing runway threshold or to the point where the flare manoeuvre should begin for the type of aircraft flown; for the FAS of an NPA procedure followed by a circling approach, the CFDA technique applies until circling approach minima (circling OCA/H) or visual flight manoeuvre altitude/ height are reached.

**Crew member.** A person assigned by an operator to duty on an aircraft during a flight duty period.

**Critical engine.** The engine whose failure would most adversely affect the performance or handling qualities of an aircraft.

**Critical phases of flight.** Those portions of operations involving taxing, take-off and landing and all flight operations below 10,000 ft. except cruise flight.

**Cruising level.** A level maintained during a significant portion of a flight.

**Cruise relief Pilot:** A flight crew member who is assigned to perform pilot tasks during cruise flight to allow the PIC or Co-pilot to obtain planned rest.

**Dangerous goods.** Articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in the Technical Instructions or which are classified according to those Instructions.

*Note. — Dangerous goods are classified in Annex 18, Chapter 3.*

**Decision altitude (DA) or decision height (DH).** A specified altitude or height in the precision approach or approach with vertical guidance at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

**Note 1.** — *Decision altitude (DA) is referenced to mean sea level and decision height (DH) is referenced to the threshold elevation.*

**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 Category III operations with a decision height the required visual reference is that specified for the particular procedure and operation*

**Note 3.** — *for convenience where both expressions are used they may be written in the form “decision altitude/height” and abbreviated “DA/H”.*

**Deadhead Transportation.** Time spent in transportation on aircraft (at the insistence of the AOC holder to or from a crew member's home station.

**Defined point after take-off.** The point, within the take-off and initial climb phase, before which the class 2 helicopter's ability to continue the flight safely, with one engine inoperative, is not assured and a forced landing may be required.

**Defined point before landing.** The point, within the approach and landing phase, after which the class 2 helicopter's ability to continue the flight safely, with one engine inoperative, is not assured and a forced landing may be required.

**Designated Examiner.** A person who is qualified, and permitted, to conduct an evaluation in an aircraft, in a flight simulator, or in a flight training device for a particular type aircraft, for a particular AOC holder.

**Destination Alternate:** An alternate aerodrome to which an aircraft may proceed should it become either impossible or inadvisable to land at an aerodrome of intended landing.

**Duty time.** The total time from the moment a person identified in this Part begins, immediately after a rest period, any work on behalf of the AOC holder until that person is free from all restraint associated with that work.

**Effective length of the runway.** The distance for landing from the point at which the obstruction clearance plane associated with the approach end of the runway intersects the centreline of the runway to the far end.

**Elevated Heliport:** A Heliport located on a raised structure on land.

**Emergency locator transmitter (ELT).** A generic term describing equipment which broadcast distinctive signals on designated frequencies and, depending on application, may be automatically activated by impact or be manually activated. An ELT may be any of the following:

**Automatic fixed ELT (ELT (AF)).** An automatically activated ELT which is permanently attached to an aircraft.

**Automatic portable ELT (ELT (AP)).** An automatically activated ELT which is rigidly attached to an aircraft but readily removable from the aircraft.

**Automatic deployable ELT (ELT (AD)).** An ELT which is rigidly attached to an aircraft and which is automatically deployed and activated by impact, and, in some cases, also by hydrostatic sensors. Manual deployment is also provided.

**Survival ELT (ELT(S)).** An ELT which is removable from an aircraft, stowed so as to facilitate its ready use in an emergency, and manually activated by survivors.

**En-route Alternate:** An aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while en-route.

**En-Route Phase:** The part of the flight from the end of the take-off and initial climb phase to the commencement of the approach and landing phase.

**Extended overwater operation.** With respect to aircraft other than helicopters, an operation over water at a horizontal distance of more than 50 nautical miles from the nearest shoreline; and to helicopters, an operation over water at a horizontal distance of more than 50 nautical miles from the nearest shoreline and more than 50 nautical miles from an offshore heliport structure.

**Fatigue.** A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness. Circadian phase, or workload (mental and/or physical activity) that can impair a crew member's alertness and ability to safely operate an aircraft or perform safety related duties

**Final approach and take-off area (FATO):** A defined area over which the final phase of the approach manoeuvre to hover or landing is completed and from which the take-off manoeuvre is commenced. Where the FATO is to be used by performance Class 1 helicopters, the defined area includes the rejected take-off area available.

**Flight (s).** The period from take-off to landing.

**Flight crew member.** A licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period.

**Flight Data Analysis.** A process of analysing recorded flight data in order to improve the safety of flight operations.

**Flight duty period.** The total time from the moment a flight crew member commences duty, immediately after a rest period and prior to making a flight or a series of flights, to the moment the flight crew member is relieved of all duties having completed such flight or series of flights.

**Flight manual.** A manual, associated with the certificate of airworthiness, containing limitations within which the aircraft is to be considered airworthy, and instructions and information necessary to the flight crew members for the safe operation of the aircraft.

**Flight operations officer/ flight dispatcher.** A person designated by the Operator to engage in the control and supervision of flight operations, whether licensed or not, suitably qualified in accordance with Part 2, who supports, briefs and or assists the pilot-in-command in the safe conduct of the flight.

**Flight plan.** Specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft. The term "flight plan" is used to mean variously, full information on all items comprised in the flight plan description, covering the whole route of a flight, or limited information required when the purpose is to obtain a clearance for a minor portion of a flight such as to cross an airway, to take off from, or to land at a controlled aerodrome.

**Flight recorder.** Any type of recorder installed in the aircraft for the purpose of complementing accident/incident investigation.

**Flight safety documents system.** A set of inter-related documentation established by the operator, compiling and organizing information necessary for flight and ground operations, and comprising, as a minimum, the operations manual and the operator's maintenance control manual.

**Flight simulation training device.** Anyone of the following three types of apparatus in which flight conditions are simulated on the ground:

*Note: (Flight simulation training device replaces synthetic flight trainer)*

**Flight time — aeroplanes.** The total time from the moment an aeroplane first moves for the purpose of taking off until the moment it finally comes to rest at the end of the flight.

*Note.— Flight time as here defined is synonymous with the term “block to block” time or “chock to chock” time in general usage which is measured from the time an aeroplane first moves for the purpose of taking off until it finally stops at the end of the flight.*

**Flight time - helicopters:** The total time from the moment a helicopter's rotor blades start turning until the moment the helicopter finally comes to rest at the end of the flight, and the rotor blades are stopped.

**Flight time.** The period of time that the aircraft moves under its own power for the purpose of flight and ends when the aircraft comes to rest after it is parked with engine(s) shut down.

**General aviation operation.** An aircraft operation other than a commercial air transport operation or an aerial work operation.

**Ground handling.** Services necessary for an aircraft's arrival at, and departure from, an airport, other than air traffic services.

**Helicopter:** A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes.

**Helideck.** A heliport located on a floating or fixed offshore structure.

**Heliport.** An aerodrome or defined area on a structure intended to be used wholly or in part for the arrival, departure, and surface movement of helicopters.

**Heliport Operating Minima** means the limit of usability of a heliport for:

- a. take-off, expressed in terms of RVR and or visibility and if necessary, cloud conditions;
- b. landing in precision approach and landing operations, expressed in terms of visibility and or RVR and decision altitude or height (DA/H) as appropriate to the category of the operation;
- c. landing in approach and landing operations with vertical guidance, expressed in terms of visibility and or RVR and decision altitude or height (DA/H); and
- d. landing in non-precision approach and landing operations, expressed in terms of visibility and or RVR, minimum decent altitude or height (MDA/H) and, if necessary, cloud conditions.

**Human Factors principles.** Principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance.

**Human performance.** Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

**Instrument meteorological conditions (IMC).** Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling\*, less than the minima specified for visual meteorological conditions.

**Note.** — *The specified minima for visual meteorological conditions are contained in Chapter 4 of Annex 2.*

**Journey log.** A form signed by the PIC of each flight that records the aircraft's registration, crewmember names and duty assignments, the type of flight, and the date, place and time of arrival and departure.

**Landing decision point.** The point used in determining landing performance from which, an engine failure occurring at this point, the landing may be safely continued, or a balked landing initiated.

**Large aeroplane.** An aeroplane of a maximum certificated take-off mass of over 5 700 kg.

**Line operating flight time** means a light time recorded by the PIC or SIC while in revenue service for an AOC holder.

**Low-visibility operations (LVO)** means approach operations in RVRs less than 550m and or with a DH less than 60m (200ft) or take-off operations in RVRs less than 400m.

**Maintenance** means the performance of tasks required to ensure the continuing airworthiness of an aircraft, including any one or combination of overhaul, inspection, replacement, defect rectification, and the embodiment of a modification or repair.



**Maintenance organization's procedures manual** means a document endorsed by the head of the maintenance organization which details the maintenance organization's structure and management responsibilities, scope of work, description of facilities, maintenance procedures and quality assurance or inspection systems.

**Maintenance programme** means a document which describes the specific schedule maintenance tasks and their frequency of completion and related procedures, such as a reliability programme, necessary for the safe operation of those aircraft to which it applies.

**Maintenance release** means a document which contains a certification confirming that the maintenance work to which it relates has been completed in a satisfactory manner, in accordance with appropriate airworthiness requirements.

**Master minimum equipment list (MMEL)** means a list established for a particular aircraft type by the organisation responsible for the type design with the approval of the State of Design containing items, one or more of which is permitted to be unserviceable at the commencement of a flight. The MMEL may be associated with special operating conditions, limitations or procedures. The MMEL provides the basis for development, review, and approval by the Authority of an individual operator's MEL.

**Maximum mass** means a Maximum certificated take-off mass (MTOM) or Maximum Take Off Weight (MTOW).

**Meteorological Information** means a Meteorological report analysis, forecast, and any other statement relating to existing or expected meteorological conditions

**Minimum descent altitude (MDA) or minimum descent height (MDH)** means a specified altitude or height in a non-precision approach or circling approach below which descent must not be made without the required visual reference.

***Note 1.** Minimum descent altitude (MDA) is referenced to mean sea level and minimum descent height (MDH) is referenced to the aerodrome elevation or to the threshold elevation if that is more than 2 m (7 ft.) below the aerodrome elevation. A minimum descent height for a circling approach is referenced to the aerodrome elevation.*

***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 the required visual reference is the runway environment.*

***Note 3.** For convenience when both expressions are used they may be written in the form "minimum descent altitude/height" and abbreviated "MDA/H".*

**Night.** The hours between the end of evening civil twilight and the beginning of morning civil twilight or such other period between sunset and sunrise, as may be prescribed by the appropriate authority.

**Obstacle Clearance Altitude (OCA) or Obstacle Clearance Height (OCH).** The lowest altitude or the lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable, used in establishing compliance with appropriate obstacle clearance criteria.

*Note 1.* — Obstacle clearance altitude is referenced to mean sea level and obstacle clearance height is referenced to the threshold elevation or in the case of non-precision approaches to the aerodrome elevation or the threshold elevation if that is more than 2 m (7 ft.) below the aerodrome elevation. An obstacle clearance height for a circling approach is referenced to the aerodrome elevation.

*Note 2.* — For convenience when both expressions are used they may be written in the form “obstacle clearance altitude or height” and abbreviated “OCA/H”.

**Obstruction clearance plane.** A plane sloping upward from the runway at a slope of 1:20 to the horizontal, and tangent to or clearing all obstructions within a specified area surrounding the runway as shown in a profile view of that area. In the plane view, the centreline of the specified area coincides with the centreline of the runway, beginning at the point where the obstruction clearance plane intersects the centreline of the runway and proceeding to a point at least 1500 feet from the beginning point. Thereafter, the centreline coincides with the take-off path over the ground for the runway (in the case of take-offs) or with the instrument approach counterpart (for landings), or where the applicable one of these paths has not been established, it proceeds consistent with turns of at least 4,500 feet radius until a point is reached beyond which the obstruction clearance plane clears all obstructions. This area extends laterally 200 feet on each side of the centreline at the point where the obstruction clearance plane intersects the runway and continues at this width to the end of the runway; then it increases uniformly to 500 feet on each side of the centreline at a point 1500 feet from the intersection of the obstruction clearance plane with the runway; thereafter, it extends laterally 500 feet on each side of the centreline.

**Operational control.** The exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of the flight.

**Operational flight plan.** The operator’s plan for the safe conduct of the flight based on considerations of aircraft performance, other operating limitations, and relevant expected conditions on the route to be followed and at the aerodromes or heliports concerned.

**Operations manual.** A manual containing procedures, instructions and guidance for use by operational personnel in the execution of their duties.

**Operator.** A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

**Operator’s maintenance control manual.** A document which describes the operator’s procedures necessary to ensure that all scheduled and unscheduled maintenance is performed on the operator’s aircraft on time and in a controlled and satisfactory manner.

**Operations Specifications** means the authorisations including specific approvals, conditions and limitations associated with the air operator certificate and subject to the conditions in the operations manual.

**Passenger exit seats.** Those seats having direct access to an exit, and those seats in a row of seats through which passengers would have to pass to gain access to an exit, from the first seat inboard of the exit to the first aisle inboard of the exit. A passenger seat having “direct access” means a seat from which a passenger can proceed directly to the exit without entering an aisle or passing around an obstruction.

**Pilot- In-Command.** The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight.

**Pressure-altitude.** An atmospheric pressure expressed in terms of altitude which corresponds to that pressure in the Standard Atmosphere\*.

**Psychoactive substances.** Alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psycho stimulants, hallucinogens, and volatile solvents, whereas coffee and tobacco are excluded.

**Radiotelephony.** A form of radio communication primarily intended for the exchange of information in the form of speech.

**Rated air traffic controller.** An air traffic controller holding a licence and valid ratings appropriate to the privileges to be exercised.

**Rating.** An authorisation entered on or associated with a licence or certificate and forming part thereof, stating special conditions, privileges or limitations pertaining to such licence or certificate.

**Rebuild.** The restoration of an aircraft or aeronautical product by using methods, techniques, and practices acceptable to the Authority, when it has been disassembled, cleaned, inspected as permitted, repaired as necessary, reassembled, and tested to the same tolerances and limits as a new item, using either new parts or used parts that conform to new part tolerances and limits.

**Rendering (a certificate of airworthiness) valid.** The action taken by a Contracting State, as an alternative to issuing its own Certificate of Airworthiness, in accepting a Certificate of Airworthiness issued by any other Contracting State as the equivalent of its own Certificate of Airworthiness.

**Reference standard.** A standard that is used to maintain working standards.

**Re-issue of a licence, rating, authorisation or certificate.** The administrative action taken after a licence, rating, authorisation or certificate has lapsed that re-issues the privileges of the licence, rating, authorisation or certificate for a further specified period consequent upon the fulfilment of specified requirements.

**Remote pilot.** A person charged by the operator with duties essential to the operation of a remotely piloted aircraft and who manipulates the flight controls, as appropriate, during flight time.

**Renewal of licence, rating, authorisation or certificate.** The administrative action taken within the period of validity of a licence, rating, authorisation or certificate that allows the holder to continue to exercise the privileges of a licence, rating, authorisation or certificate for a further specified period consequent upon the fulfilment of specified requirements.

**Repair.** The restoration of an aeronautical product to an airworthy condition to ensure that the aircraft continues to comply with the design aspects of the appropriate airworthiness requirements used for the issuance of the type certificate for the respective aircraft type, after it has been damaged or subjected to wear.

**Repetitive flight plan (RPL).** A flight plan related to a series of frequently recurring, regularly operated individual flights with identical basic features, submitted by an operator for retention and repetitive use by ATC units.

**Reporting point.** A specified geographical location in relation to which the position of the aircraft can be reported.

**Required communication performance (RCP).** A statement of the performance requirements for operational communication in support of specific ATM functions.

**Required communication performance type (RCP type).** A label (e.g. RCP 240) that represents the values assigned to RCP parameters for communication transaction time, continuity, availability and integrity.

**Required inspection items.** As used in Part 5, maintenance items and/or alterations that must be inspected by a person other than the one performing the work and include at least those that could result in a failure, malfunction, or defect endangering the safe operation of the aircraft, if not properly performed or if improper parts or materials are used.

**Required navigation performance (RNP).** A statement of the navigation performance necessary for operation within a defined airspace.

*Note.* Navigation performance and requirements are defined for a particular RNP type and/or application.

**Rest period.** Any period of time on the ground during which a flight crewmember is relieved of all duties by the operator.

**Restricted area.** An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.

**Rotorcraft.** A power-driven heavier-than-air aircraft supported in flight by the reactions of the air on one or more rotors.

**Rotorcraft load combinations.** Configurations for external loads carried by rotorcraft—

**Class A** – external load fixed to the rotorcraft, cannot be jettisoned, and does not extend below the landing gear, used to transport cargo.

**Class B** – external load suspended from the rotorcraft, which can be jettisoned, and is transported free of land or water during rotorcraft operations.

**Class C** – external load suspended from the rotorcraft, which can be jettisoned, but remains in contact with land or water during rotorcraft operation.

**Class D** - external load suspended from the rotorcraft for the carriage of persons.

**Route sector.** A flight comprising take off, departure, cruise of not less than 15 minutes, arrival, approach and landing phases.

**Runway.** A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.

**RNP type.** A containment value expressed as a distance in nautical miles from the intended position within which flights would be for at least 95 per cent of the total flying time.

*Example. — RNP 4 represents a navigation accuracy of plus or minus 7.4 km (4 NM) on a 95 per cent containment basis.*

**Runway Visual Range (RVR).** The range over which the pilot of an aircraft on the centreline of a runway can see the runway surface markings or the lights delineating the runway or identifying its centreline.

**Small aeroplane.** An aeroplane of a maximum certificated take-off mass of 5 700 kg or less.

**Safe forced landing** means unavoidable landing or ditching with a reasonable expectancy of no injuries to persons in the aircraft or on the surface.

**Safety management system** means a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.

**Safety programme** means an integrated set of Directives and activities aimed at improving safety.

**Specific approval** means an approval which is documented in the Operations Specifications for commercial air transport operations or in the list of specific approvals for non-commercial operations.

*Note.* — The terms authorization, specific approval, approval and acceptance are further described in IS 9.1.6.

**State of Registry.** The State on whose register the aircraft is entered.

*Note:* In the case of the registration of aircraft of an international operating agency on other than a national basis, the States constituting the agency are jointly and severally bound to assume the obligations which, under the Chicago Convention, attach to a State of Registry. See, in this regard, the Council Resolution of 14 December 1967 on Nationality and Registration of Aircraft Operated by International Operating Agencies which can be found in Policy and Guidance Material on the Economic Regulation of International Air Transport (Doc 9587).

**State of the principal location of a general aviation operator** means the State in which the operator of a general aviation aircraft has its principal place of business or, if there is no such place of business, its permanent residence.

*Note:* Guidance concerning the options for the principal location of a general aviation operator is contained in the Manual on the Implementation of Article 83 bis of the Convention on International Civil Aviation (Doc 10059).

**State of the Operator.** The State in which the operator's principal place of business is located or, if there is no such place of business, the operator's permanent residence.

**Synthetic flight trainer.** Any one of the following three types of apparatus in which flight conditions are simulated on the ground:

**A flight simulator,** which provides an accurate representation of the flight deck of a particular aircraft type to the extent that the mechanical, electrical, electronic, etc. aircraft systems control functions, the normal environment of flight crew members, and the performance and flight characteristics of that type of aircraft are realistically simulated;

**A flight procedures trainer,** which provides a realistic flight deck environment, and which simulates instrument responses, simple control functions of mechanical, electrical, electronic, etc. aircraft systems, and the performance and flight characteristics of aircraft of a particular class;

**A basic instrument flight trainer,** which is equipped with appropriate instruments, and which simulates the flight deck environment of an aircraft in flight in instrument flight conditions.

**Take-off and initial climb phase:** The part of the flight from the start of the take-off to 300m (1000 ft.) above the elevation of the FATO, if the flight is planned to exceed this height, or to the end of the climb in the other cases.

**Target level of safety (TLS).** A generic term representing the level of risk which is considered acceptable in particular circumstances.

**Total vertical error (TVE).** The vertical geometric difference between the actual pressure altitude flown by an aircraft and its assigned pressure altitude (flight level).

**Take-off Alternate** means an alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.

**Take-off decision point** means the point used in determining take-off performance of Class 1 helicopter from which, an engine failure occurring at this point, either a rejected take-off may be made, or take-off safely continued.

**Threshold time** means the range, expressed in time, established by the State of the Operator, to an en-route alternate aerodrome, whereby any time beyond requires a specific approval for EDTO from the State of the Operator.

**Visual meteorological conditions (VMC)** means a Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling\*, equal to or better than specified minima.

*Note.*— The specified minima are contained in Chapter 4 of Annex 2.

**Vross** The minimum speed at which climb shall be achieved with the critical power-unit inoperative, the remaining power - units operating within approved operating limits

### 8.1.3 ABBREVIATIONS

The following acronyms are used in Part 8:

|      |   |                           |
|------|---|---------------------------|
| AAC  | - | All Aircraft              |
| AFM  | - | Aeroplane Flight Manual   |
| AGL  | - | Above Ground Level        |
| AMSL | - | Above Mean Sea Level      |
| AOC  | - | Air Operator Certificate  |
| AOM  | - | Aircraft Operating Manual |
| APU  | - | Auxiliary Power Unit      |

|       |   |   |
|-------|---|---|
| ATC   | - | Air Traffic Control                           |
| C2    | - | Command and Control Link                      |
| CAT   | - | Category                                      |
| CDL   | - | Configuration Deviation List                  |
| CP    | - | Co-pilot                                      |
| CRT   | - | Cathode Ray Tube                              |
| CRM   | - | Crew Resource Management                      |
| DH    | - | Decision Height                               |
| ETA   | - | Estimated Time of Arrival                     |
| EDTO  | - | Extended Diversion Time Operation             |
| FAS   | - | Final Approach Sector                         |
| FE    | - | Flight Engineer                               |
| FL    | - | Flight Level                                  |
| FRMS  | - | Fatigue Risk Management System                |
| FSTD  | - | Flight Simulation Training Device             |
| GPS   | - | Global Positioning System                     |
| IMC   | - | Instrument Meteorological Conditions          |
| INS   | - | Inertial Navigation System                    |
| LDA   | - | Localizer-type Directional Aid                |
| LOC   | - | Localizer                                     |
| LORAN | - | Long-range Navigation                         |
| LVTO  | - | Low Visibility Take Off                       |
| MCA   | - | Minimum Crossing Altitude                     |
| MDA   | - | Minimum Decent Altitude                       |
| MEA   | - | Minimum En Route Altitude                     |
| MEL   | - | Minimum Equipment List                        |
| MMEL  | - | Master Minimum Equipment List                 |
| MNPS  | - | Minimum Navigation Performance Specifications |
| MOCA  | - | Minimum Obstruction Clearance Altitude        |
| MSL   | - | Mean Sea Level                                |
| NM    | - | Nautical Mile                                 |
| NOTAM | - | Notice to Airmen                              |
| OCA/H | - | Obstacle Clearance Altitude/Height            |
| RFM   | - | Rotorcraft Flight Manual                      |



|                 |   |   |
|-----------------|---|---|
| RFFS            | - | Rescue and Fire Fighting Service  |
| RPA             | - | Remotely Piloted Aircraft   |
| RPAS            | - | Remotely Piloted Aircraft System  |
| RVR             | - | Runway Visual Range   |
| RVSM            | - | Reduced Vertical Separation Minimum   |
| PBE             | - | Protective Breathing Equipment  |
| PIC             | - | Pilot in Command  |
| SCCM            | - | Senior Cabin Crewmember   |
| SDF             | - | Simplified Directional Facility   |
| SM              | - | Statute Miles   |
| TACAN           | - | Tactical Air Navigation System  |
| VLOS            | - | Visual Line-of-sight  |
| VMC             | - | Visual Meteorological Conditions  |
| VSM             | - | Vertical Separation Minimum   |
| V <sub>1</sub>  | - | Take-off decision speed   |
| V <sub>MO</sub> | - | Maximum operating speed   |
| V <sub>so</sub> | - | Stalling speed or the minimum steady flight speed in the Landing configuration. |

## **8.2 GENERAL OPERATIONS REQUIREMENTS**

### **8.2.1 AIRCRAFT REQUIREMENTS**

#### **8.2.1.1 REGISTRATION MARKINGS**

No person may operate a Ghana registered aircraft unless it displays the proper markings prescribed in Part 4.

#### **8.2.1.2 CIVIL AIRCRAFT AIRWORTHINESS**

- (1) No person may operate a civil aircraft unless it is in an airworthy condition.
- (2) Each PIC shall determine whether an aircraft is in a condition for safe flight.
- (3) The PIC shall discontinue a flight as soon as practicable when an unairworthy mechanical, electrical or structural condition occurs.

### 8.2.1.3 SPECIAL AIRWORTHINESS CERTIFICATE OPERATIONAL RESTRICTIONS

No person may operate an aircraft with a special airworthiness certificate except as provided in the limitations issued with that certificate.

### 8.2.1.4 AIRCRAFT INSTRUMENTS AND EQUIPMENT

No person may operate an aircraft unless it is equipped with the required instruments and navigation equipment appropriate to the type of flight operation conducted and the route being flown.

*Note: The instrument and equipment required for specific operations are listed in Part 7.*

### 8.2.1.5 INOPERATIVE INSTRUMENTS AND EQUIPMENT

- (1) No person may take-off an aircraft with inoperative instruments or equipment installed, except as authorised by the Authority.
- (2) An AOC holder shall not operate a multi-engine aircraft with inoperative instruments and equipment installed unless the following conditions are met:
  - (a) An approved Minimum Equipment List exists for that aircraft;
  - (b) The Authority has issued the AOC holder specific operating provisions authorising operations in accordance with an approved Minimum Equipment List. The flight crew shall have direct access at all times prior to flight to all of the information contained in the approved Minimum Equipment List through printed or other means approved by the Authority in the AOC holders specific operating provisions. An approved Minimum Equipment List, as authorised by the specific operating provisions, constitutes an approved change to the type design without requiring recertification.
- (3) The approved Minimum Equipment List must:
  - (a) be prepared in accordance with the limitations specified in paragraph (6) of this section; and
  - (b) provide for the operation of the aircraft with certain instruments and equipment in inoperative condition.
- (4) Records identifying the inoperative instruments and equipment and the information required by paragraph (3)(b) of this section must be available to the pilot.
- (5) The aircraft is operated under all applicable conditions and limitations contained in the Minimum Equipment List and the operations specifications authorising use of the Minimum Equipment List.

- (6) The Following instruments and equipment may not be included in the Minimum Equipment List:
- (a) Instruments and equipment that are either specifically or otherwise required by the airworthiness requirements under which the aircraft is type certificated and which are essential for safe operations under all operating conditions.
  - (b) Instruments and equipment required by an airworthiness directive to be in operable condition unless the airworthiness directive provides otherwise.
  - (c) Instruments and equipment required for specific operations under Part 7, Part 8 and or Part 9 of these Directives.
- (7) Notwithstanding paragraphs (6)(a) and (6) (c) of this section, an aircraft with inoperative instruments or equipment may be operated under a special flight permit under 5.4.11 of these Directives.

**Note:** *Implementing Standard: See IS: 8.2.1.5 for specific limitation on inoperative instruments and equipment.*

#### **8.2.1.6 CIVIL AIRCRAFT FLIGHT MANUAL, MARKING AND PLACARD REQUIREMENTS**

- (1) No person may operate a Ghana-registered civil aircraft unless there is available in the aircraft-
- (a) A current, approved AFM or RFM; or
  - (b) An AOM approved by the Authority for the AOC holder;
  - (c) If no AFM or RFM exists, approved manual material, markings and placards, or any combination thereof which provide the PIC with the necessary limitations for safe operation.
- (2) No person may operate a civil aircraft within or over Ghana without complying with the operating limitations specified in the approved AFM or RFM, markings and placards, or as otherwise prescribed by the certifying authority for the aircraft's State of Registry.
- (3) Each AFM or RFM shall be updated by implementing changes made mandatory by the State of Registry.
- (4) Each Operator shall display in the aircraft all placards, listings, instrument markings or combination thereof, containing those operating limitations prescribed by the certifying authority for the aircraft's State of Registry for visual presentation.

**8.2.1.7 REQUIRED AIRCRAFT AND EQUIPMENT INSPECTIONS**

- (1) Unless otherwise authorised by the Authority, no person may operate a Ghana civil aircraft unless it has had the following inspections-
  - (a) An annual inspection within the past 12 calendar months;
  - (b) For remuneration or hire operations, a 100-hour inspection;
  - (c) For IFR operations, an altimeter and pitot-static system inspection in the past 24 calendar months;
  - (d) For transponder equipped aircraft, a transponder check within the past 12 calendar months; and
  - (e) For ELT equipped aircraft, an ELT check within the past 12 calendar months.
- (2) Aircraft maintained under an alternate maintenance and inspection program approved by the Authority, may not have current annual or 100-hour inspections in their maintenance records as specified in 5.7.3(1).

**Note:** An “alternate maintenance and inspection program” may include a manufacturer’s recommended program, instructions for continued airworthiness, or a program designed by the operator and approved by the Authority.

**Note:** The requirements of these inspections are provided in Part 5.

**8.2.1.8 DOCUMENTS TO BE CARRIED ON AIRCRAFT: ALL OPERATIONS**

- (1) Except as provided in 8.2.1.6, no person may operate a civil aircraft **in commercial air transport operations** unless it has within it the following current and approved documents:
  - (a) Registration Certificate issued to the owner.
  - (b) Airworthiness Certificate
  - (c) Aircraft Journey Log.
  - (d) Aircraft Radio Licence
  - (e) List of passenger names and points of embarkation and destination, if applicable. (Passenger manifest)
  - (f) Cargo manifest including special loads information.
  - (g) Aircraft Technical Log.
  - (h) Certified true copy of the Air Operator Certificate and a copy operations specifications;

- (i) Noise Certificate, if required, and translated in English if any other language.
  - (j) AFM or RFM.
  - (k) Part(s) of the Operations Manual relevant to operation(s) conducted, if required.
  - (l) MEL.
  - (m) Category II or III Manual, as applicable.
  - (n) Operational Flight Plan.
  - (o) Filed ATC flight plan.
  - (p) NOTAMS briefing documentation.
  - (q) Meteorological information.
  - (r) Mass and balance documentation.
  - (s) Roster of special situation passengers.
  - (t) Maps and charts for routes of proposed flight or possibly diverted flights.
  - (u) Forms for complying with the reporting requirements of the Authority and the AOC holder.
  - (v) For international flights, a general declaration for customs.
  - (w) Any documentation which may be required by the Authority or States concerned with a proposed flight. (e.g. Insurance Certificate).
- (2) Except as provided in 8.2.1.6, no person may operate a civil aircraft in general aviation operations or aerial work operations unless it has within it the following current and approved documents:
- (a) Certificate of Aircraft Registration issued to the owner.
  - (b) Certificate of Airworthiness.
  - (c) Aircraft Journey Log.
  - (d) Aircraft Radio License, for international flights.
  - (e) List of passenger names and points of embarkation and destination, if applicable.

- (f) Cargo manifest including special loads information.
- (g) The appropriate licences for each member of the flight crew.
- (h) Copy of the release to service, if any, in force with respect to the aircraft, or technical log, as applicable.
- (i) Noise certificate, if required.
- (j) AFM or RFM, for aeroplanes or helicopters.
- (k) Category II or III Manual, as applicable.
- (l) Operational Flight Plan, for all international flights.
- (m) NOTAMS briefing documentation.
- (n) Maps and charts for routes of proposed flight or possibly diverted flights.
- (o) Forms for complying with the reporting requirements of the Authority.
- (p) For international flights, a general declaration for customs.
- (q) Aerial work certificate for aerial work operators.
- (r) Search and rescue information, for international flights.
- (s) Any documentation that may be required by the Authority or States concerned with a proposed flight.

**Note 1:** “Special situation passengers” includes armed security personnel, deportees, persons in custody, and persons with special medical needs.

**Note 2:** The noise certificate shall state the standards in ICAO Annex 16, Volume 1. The statement may be contained in any document, carried on board, approved by the Authority.

- (3) No person shall operate an aircraft under an Article 83 bis agreement entered into between the State of Registry and the State of Operator, without carrying on board the aircraft a certified true copy of the agreement summary, in either an electronic or hard copy format.

#### **8.2.1.9 AIRCRAFT OPERATED UNDER AN ARTICLE 83 BIS AGREEMENT**

- (1) No person shall operate an aircraft under an Article 83 bis agreement entered into between the State of Registry and the State of the Operator, without carrying a certified true copy of the agreement summary, in either an electronic or hard copy format. When the summary is issued in a language other than English, an English translation shall be included.

*Note.— Guidance concerning the transfer of responsibilities by the State of Registry to the State of the Operator in accordance with Article 83 bis is contained in the Manual on the Implementation of Article 83 bis of the Convention on International Civil Aviation (Doc 10059).*

*Note.— Guidance regarding the agreement summary is contained in the Manual on the Implementation of Article 83 bis of the Convention on International Civil Aviation (Doc 10059).*

- (2) The agreement summary of an Article 83 bis agreement referred to in paragraph (1) shall be accessible to a civil aviation safety inspector to determine which functions and duties are transferred under the agreement by the State of Registry to the State of the Operator, when conducting surveillance activities such as ramp checks.

*Note.— Guidance for the civil aviation safety inspector conducting an inspection of an aeroplane operated under an Article 83 bis agreement is contained in the Manual of Procedures for Operations Inspection, Certification and Continued Surveillance (Doc 8335).*

- (3) No person shall operate an aircraft under an Article 83 bis agreement unless the agreement summary referred to in paragraph (1) unless the agreement summary has been transmitted to ICAO together with the Article 83 bis Agreement for registration with the ICAO Council by the State of Registry or the State of the Operator.

*Note.— The agreement summary transmitted with the Article 83 bis agreement registered with the ICAO Council contains the list of all aircraft affected by the agreement. However, the certified true copy to be carried on board as per 8.2.1.8(3)(a) will need to list only the specific aircraft carrying the copy.*

- (4) The agreement summary shall contain the information in IS:8.2.1.8(3) for the specific aircraft and should follow the layout of IS:8.2.1.8(3), paragraph 2.

### **8.3 AIRCRAFT MAINTENANCE REQUIREMENTS**

#### **8.3.1 APPLICABILITY**

- (1) This Subpart prescribes the rules governing the inspection of Ghana registered civil aircraft operating within or outside Ghana.
- (2) Subsections 8.3.3 and 8.3.4 do not apply to aircraft subject to an approved continuous maintenance program approved by the Authority for an AOC holder in Part 9.
- (3) This Subpart applies to all aircraft, as designated below, operated as commercial air transport in Ghana if the operator has not been designated an AOC holder by Ghana.

- (4) This subpart applies to all general aviation, large complex aircraft operated in Ghana, whether or not the aircraft is registered in Ghana.
- (5) Where any aircraft, not registered in Ghana and operating under an inspection program approved or accepted by the State of Registry, does not have the equipment required by Ghana - for operations within Ghana, the owner or operator shall ensure that such equipment is installed and inspected in accordance with the requirements of the State of Registry, acceptable to the Authority prior to operation of that aircraft in Ghana.

### **8.3.2 GENERAL**

- (1) The registered owner or operator of an aircraft is responsible for maintaining that aircraft in an airworthy condition, including compliance with all airworthiness directives.
- (2) No person may perform maintenance, preventive maintenance, or alterations on an aircraft other than as prescribed in this subpart and other applicable Directives, including Part 5.
- (3) No person may operate an aircraft for which manufacturer's maintenance manual or instructions for continued airworthiness has been issued that contains an airworthiness limitations section, unless the mandatory replacement times, inspection intervals and related procedures set forth in operations specifications approved by the Authority under Part 9 or in accordance with an inspection program approved under 8.3.4 have been complied with.
- (4) 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 State of Registry, ensure that, the information resulting from maintenance and operational experience with respect to continuing airworthiness, is transmitted as required by the Ghana Civil Aviation Directives.
- (5) The owner of an aeroplane over 5700 kg maximum certificated take-off mass, or in the case where it is leased, the lessee, shall, as required by the State of Registry, ensure that, the information resulting from maintenance and operational experience with respect to continuing airworthiness, is transmitted as required by the Ghana Civil Aviation Directives.
- (6) The owner or operator of an aircraft shall ensure that all maintenance personnel receive initial and continuation training acceptable to the Authority and appropriate to their assigned tasks and responsibilities. This shall include Human Factors and coordination with other maintenance personnel and flight crew.
- (7) The owner or operator of an aircraft shall provide a maintenance control manual, as specified in Part 9.4.4, for the use and guidance of maintenance and operation personnel. The design and application of the operator's maintenance control manual shall observe Human Factors principles.



- (8) The owner or operator of an aircraft shall provide, for the use and guidance of maintenance and operational personnel concerned, a maintenance programme, acceptable to the Authority and shall contain the information required by Part 9.4.12. The design and application of the operator's maintenance programme shall observe Human Factors principles.
- (9) Copies of all amendments to the owner or operator's manuals shall be furnished promptly to all organizations or persons to whom the manual has been issued.
- (10) The owner or operator's maintenance programme shall comply with the requirements of Part 9.4.12 as applicable.

### 8.3.3 MAINTENANCE REQUIRED

Each owner or operator of an aircraft shall-

- (a) Have that aircraft inspected as prescribed in Part 8.3 and discrepancies repaired as prescribed in the Performance Rules of Part 5;
- (b) Repair, replace, remove or inspect any inoperative instruments or items of equipment at the next required inspection, except when permitted under the provisions of a Minimum Equipment List (MEL);
- (c) Ensure that a placard has been installed on the aircraft when listed discrepancies include inoperative instruments or equipment; and
- (d) Ensure that maintenance personnel make appropriate entries in the aircraft maintenance records indicating the aircraft has been approved for return to service.

### 8.3.4 INSPECTIONS

- (1) Except as provided in paragraph (3), no person may operate an aircraft unless, within the preceding 12 calendar months, the aircraft has had-
  - (a) An annual inspection in accordance with Part 5 and has been approved for return to service by a person authorised by 5.6.7; or
  - (b) An inspection for the issuance of an airworthiness certificate in accordance with Part 5.

**Note:** No inspection performed under paragraph (b) of this section may be substituted for any inspection required by this paragraph unless it is performed by a person authorised to perform annual inspections and is entered as an "annual" inspection in the required maintenance record.

- (2) Except as provided in paragraph (3), no person may operate an aircraft carrying any person (other than a crewmember) for hire, and no person may give flight instruction for hire in an aircraft which that person provides, unless within the preceding 100 hours of time in service the aircraft has received an annual or 100-hour inspection and been approved for return to service in accordance with Part 5 of this chapter or has received an inspection for the issuance of an airworthiness certificate in accordance with Part 5 of this chapter. The 100-hour limitation may be exceeded by not more than 10 hours while en route to reach a place where the inspection can be done. The excess time used to reach a place where the inspection can be done must be included in computing the next 100 hours of time in service.
- (3) Paragraphs (1) and (2) of this section do not apply to –
- (a) An aircraft that carries a special flight permit, a current experimental certificate, or a provisional airworthiness certificate;
  - (b) An aircraft subject to the requirements of paragraph (4) or (5) of this section; or
  - (c) Turbine-powered rotorcraft when the operator elects to inspect that rotorcraft in accordance with paragraph (5) of this section.
- (4) **Progressive inspection.** Each registered owner or operator of an aircraft desiring to use a progressive inspection program shall submit a written request to the Authority, and shall provide-
- (a) A licensed engineer holding an inspection authorisation in accordance with Part 2, an AMO appropriately rated in accordance with Part 6, or the manufacturer of the aircraft to supervise or conduct the progressive inspection.
  - (b) A current inspection procedures manual available and readily understandable to pilot and maintenance personnel containing, in detail-
    - (i) An explanation of the progressive inspection, including the continuity of inspection responsibility, the making of reports, and the keeping of records and technical reference material;
    - (ii) An inspection schedule, specifying the intervals in hours or days when routine and detailed inspections will be performed and including instructions for exceeding an inspection interval by not more than 10 hours while en-route and for changing an inspection interval because of service experience;
    - (iii) Sample routine and detailed inspection forms and instructions for their use; and
    - (iv) Sample reports and records and instructions for their use;

- (c) Enough housing and equipment for necessary disassembly and proper inspection of the aircraft; and
- (d) Appropriate current technical information for the aircraft.

**Note:** *The frequency and detail of the progressive inspection shall provide for the complete inspection of the aircraft within each 12 calendar months and be consistent with the current manufacturer's recommendations, field service experience, and the kind of operation in which the aircraft is engaged. The progressive inspection schedule shall ensure that the aircraft, at all times, will be airworthy and will conform to all applicable aircraft specifications, type certificate data sheets, airworthiness directives, and other approved data acceptable to the Authority. If the progressive inspection is discontinued, the owner or operator shall immediately notify the Authority, in writing, of the discontinuance. After the discontinuance, the first annual inspection under Part 8 is due within 12 calendar months after the last complete inspection of the aircraft under the progressive inspection. The 100-hour inspection under 8.2.1.7(1) (b) is due within 100 hours after that complete inspection. A complete inspection of the aircraft, for the purpose of determining when the annual and 100 hour inspections are due, requires a detailed inspection of the aircraft and all its components in accordance with the progressive inspection. A routine inspection of the aircraft and a detailed inspection of several components is not considered to be a complete inspection.*

- (5) **Large aeroplanes.** The registered owner or operator of each large aeroplane, turbojet multi-engine aeroplane, turbo propeller – powered multi-engine aeroplane, and turbine powered rotorcraft shall select, identify in the aircraft maintenance records, and use one of the following programs for the inspections of the aircraft-
  - (a) A current inspection program recommended by the manufacturer;
  - (b) A continuous maintenance program that is part of a continuous maintenance program for that make and model of aircraft currently approved by the Authority for use by an AOC holder, or
  - (c) Any other inspection program established by the registered owner or operator of that aircraft and approved by the Authority.
- (6) Each owner or operator shall include in the selected program the name and address of the person responsible for the scheduling of the inspections required by the program and provide a copy of the program to the person performing inspection on the aircraft.
- (7) No aircraft shall be approved for return to service unless the replacement times for life-limited parts specified in the aircraft specification-type data sheets are complied with and the aeroplane, including airframe, engines, propellers, rotors, appliances, and survival and emergency equipment, is inspected in accordance with an inspection program selected.
- (8) Each person wishing to establish or change an approved inspection program shall submit the program for approval by the Authority and shall include in writing-
  - (a) Instructions and procedures for the conduct of inspection for the particular make and model of aircraft, including necessary tests and checks. The instructions shall set forth in detail the parts and areas of

the aeronautical products, including survival and emergency equipment required to be inspected; and

- (b) A schedule for the inspections that shall be performed expressed in terms of time in service, calendar time, number of system operations or any combination of these.
- (9) When an operator changes from one inspection program to another, the operator shall apply the time in service, calendar times, or cycles of operation accumulated under the previous program, in determining time the inspections is due under the new program.

### **8.3.5 CHANGES TO AIRCRAFT MAINTENANCE PROGRAMS**

- (1) Whenever the Authority finds that revisions to an approved inspection program are necessary for the continued adequacy of the program, the owner or operator shall, after notification by the Authority, make any changes in the program found to be necessary.
- (2) The owner or operator may petition the Authority to reconsider the notice, within 30 days after receiving that notice.
- (3) Except in the case of an emergency requiring immediate action in the interest of safety, the filing of the petition stays the notice pending a decision by the Authority.

### **8.3.6 INSPECTIONS: ALL OTHER AIRCRAFT**

- (1) No person may operate any other aircraft unless within the preceding 12 calendar months it has-
  - (a) Had an inspection in accordance with Performance Rules of Part 5 and approved for return to service by an authorised person; and
  - (b) Been issued an Airworthiness Certificate by a representative of the Authority.
- (2) No person may operate an aircraft for flight instruction, or for compensation or hire, unless within the preceding 100 hours of time in service the aircraft has been inspected in accordance with the Performance Rules of Part 5 and approved for return to service by an authorised person as identified in Part 5.

### **8.3.7 CONTENT, FORM, AND DISPOSITION OF MAINTENANCE, PREVENTIVE MAINTENANCE, REBUILDING, AND MODIFICATION RECORDS**

The owner or operator of an aircraft shall keep maintenance records of-

- (a) The entire aircraft to include-
- (i) Total time in service (hours, calendar time and cycles, as appropriate) of the aircraft and all life-limited parts;
  - (ii) Current inspection status of the aircraft, including the time since required or approved inspections were last performed;
  - (iii) Current empty mass and the location of the centre of gravity when empty;
  - (iv) Addition or removal of equipment;
  - (v) Type and extent of maintenance and alteration, including the time in service and date;
  - (vi) When work was performed;
  - (vii) A chronological list of compliance with Airworthiness Directives, including methods of compliance;
  - (viii) Appropriate details of modifications and repairs; and
  - (ix) The current status of applicable Airworthiness Directives including, for each, the method of compliance, the Airworthiness Directive number, and revision date. If the Airworthiness Directive involves recurring action, the time and date when the next action is required.
- (b) Life limited products-
- (i) Total time in service;
  - (ii) Date of the last overhaul;
  - (iii) Time in service since the last overhaul; and
  - (iv) Date of the last inspection.
- (c) Instruments and equipment, the serviceability and operating life of which are determined by their time in service-
- (i) Records of the time in service as are necessary to determine their serviceability or to compute their operating life; and
  - (ii) Date of last inspection.
- (d) The current status of the aircraft's compliance with the maintenance programme.

- (e) The detailed maintenance records to show that all requirements for the signing of a maintenance release have been complied with.
- (f) Copies of the forms prescribed by this Part for each major modification to the airframe and currently installed engines, rotors, propellers, and appliances.

### **8.3.8 MAINTENANCE RECORDS RETENTION**

- (1) Except for records maintained by an AOC holder, each registered owner or operator shall retain the records specified in Part 8.3.7(a) to (d) for a minimum period of 90 days after the unit to which they refer has been permanently withdrawn from service and the records specified in Part 8.3.7(e) for a minimum period of one year after the signing of the maintenance release.
- (2) The records specified in paragraph (1) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold or leased.
- (3) A list of defects shall be retained until the defects are repaired and the aircraft is approved for return to service.
- (4) The owner or operator shall make all maintenance records required by this subsection available for inspection by the Authority.
- (5) The records specified in Part 8.3.7 and or Part 9.4.8 shall not be carried on board the aircraft to which they pertain.
- (6) Each operator of an aircraft shall ensure that in the event of temporary change of operator, the records specified in Part 8.3.7(1) shall be made available to the new operator as required by Part 9.4.8(3) of these Flight Standards Directives.
- (7) Each operator of an aircraft shall ensure that when the aircraft is permanently transferred from one operator to another operator, the records specified in Part 8.3.7(1) are also transferred as required by Part 9.4.8(4) of these Flight Standards Directives.

### **8.3.9 TRANSFER OF MAINTENANCE RECORDS**

Any owner or operator who sells or leases a Ghana registered aircraft shall transfer to the purchaser or lessor, at the time of sale or lease, the records identified in 8.3.7 of that aircraft, in plain language form or in coded form at the election of the purchaser or lessor, if the coded form provides for the preservation and retrieval of information in a manner acceptable to the Authority.

### **8.3.10 MODIFICATIONS AND REPAIRS**

All modifications and repairs shall comply with airworthiness requirements acceptable to the Authority. The applicant shall ensure that the substantiating data supporting compliance with the airworthiness requirements are retained. However, in the case of a major repair or major modification, the work must have been done in accordance with technical, including engineering, data approved by the State of Design and accepted by the Authority.

*Note: For AOC Holders refer to Part 9.4.10 for further details.*

## **8.4 FLIGHT CREW REQUIREMENTS**

### **8.4.1 COMPOSITION OF THE FLIGHT CREW**

- (1) 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 airworthiness certificate.
- (2) Where radio equipment is installed in the aircraft, the flight crew shall include at least one member who holds a valid radio licence authorising operation of the type of radio transmitting equipment to be used.
- (3) When navigation necessary for the safe operation of the aeroplane cannot be accomplished from the pilot's station the flight crew shall include a member who holds a flight navigator licence.
- (4) A co-pilot (CP) is required for IFR commercial air transport operations, unless the Authority has issued an exemption in accordance with the exemption process in Part 1 of these Directives, for the use of an autopilot in lieu of a co-pilot. This exemption shall be for domestic operations only and aeroplanes weighing less than 5700 kg (12566 lb.) or helicopters weighing less than 3,175 kg.
- (5) When a separate flight engineer's station is incorporated in the design of an aeroplane and the flight engineer function cannot be accomplished from the pilot's station by a pilot who holds a flight engineer licence without interference with regular duties, the flight crew shall include at least one crewmember who holds a flight engineer licence especially assigned to that station.

### **8.4.2 FLIGHT CREW QUALIFICATIONS**

- (1) The PIC shall ensure that the licences of each flight crew member have been issued or rendered valid by the State of Registry, contain the proper ratings, and that all the flight crew members have maintained recency of experience.

- (2) No person may operate a civil aircraft in commercial air transport or aerial work unless that person is qualified for the specific operation and in the specific type of aircraft used.
- (3) The owner or operator of an aircraft shall ensure that the flight crewmembers demonstrate the ability to speak and understand English language which is used for radiotelephony communications.

#### **8.4.3 AUTHORISATION IN LIEU OF A TYPE RATING**

- (1) The Authority may authorise a pilot to operate an aircraft requiring a type rating without a type rating for up to 60 days, provided-
  - (a) The Authority has determined that an equivalent level of safety can be achieved through the operating limitations on the authorisation;
  - (b) The applicant shows that compliance with this subsection is impracticable for the flight or series of flights;
  - (c) The operations-
    - (i) Involve only a ferry flight, training flight, test flight, or skills test for a pilot licence or rating;
    - (ii) Are within Ghana, unless, by previous agreement with the Authority, the aircraft is flown to an adjacent contracting State for maintenance;
    - (iii) Are not for compensation or hire unless the compensation or hire involves payment for the use of the aircraft for training or taking a practical test; and
    - (iv) Involve only the carriage of flight crewmembers considered essential for the flight.
- (2) If the purpose of the authorisation provided by this paragraph cannot be accomplished within the time limit of the authorisation, the Authority may authorise an additional period of up to 60 days.

#### **8.4.4 LICENCES REQUIRED**

Except as provided for in Part 8.4.3, no person may act as PIC or in any other capacity as a required flight crewmember of a civil aircraft of:

- (a) Ghana registry, unless he or she carries in their personal possession the appropriate and current licence for that flight crew position for that type of aircraft, a radio telephony licence and a valid medical certificate.



- (b) Foreign registry, unless he or she carries in their personal possession a valid and current licence for that type of aircraft, a radio telephony licence and a valid medical certificate issued to them by the State in which the aircraft is registered.

#### **8.4.5 RATING REQUIRED FOR IFR OPERATIONS**

No person may act as pilot of a civil aircraft under IFR or in weather conditions less than the minimums prescribed for VFR flight unless—

- (a) The pilot holds an instrument rating or an ATP licence with an appropriate aircraft category, class, and type rating (if required) for the aircraft being flown;
- (b) In the case of helicopter, the pilot holds a helicopter instrument rating.

#### **8.4.6 SPECIAL AUTHORISATION REQUIRED FOR CATEGORY II AND III OPERATIONS**

- (1) Except as shown in paragraph (2), no person may act as a pilot crew member of a civil aircraft in a Category II/III operation unless—
  - (a) In the case of a PIC, he holds a current Category II or III pilot authorization issued by the State of Registry for that aircraft type.
  - (b) In the case of a CP, he is authorized by the State of Registry to act as CP in that aircraft type in Category II/III.
- (2) An authorisation is not required for individual pilots of an AOC holder that has operations specifications approving Category II or III operations.

#### **8.4.7 PILOT LOGBOOKS**

- (1) Each pilot shall provide evidence of the aeronautical training and experience used to meet the requirements for a licence or rating, or recency of experience, by a reliable record.
- (2) Each PIC shall carry his logbook on all general aviation international flights.
- (3) A student pilot shall carry his logbook, including the proper flight instructor endorsements, on all solo cross-country flights.

*Note: The acceptable methods of logging experience are outlined in Part 2 of these Flight Standards Directives*

**8.4.8 PILOT REGENCY AND PROFICIENCY – GENERAL AVIATION OPERATIONS**

- (1) No person may act as PIC of an aircraft type certified for more than one pilot unless, since the beginning of the past 12 calendar months, he has passed a proficiency check in an aircraft requiring more than one pilot with an authorised representative of the Authority.
- (2) No person may act as PIC of an aircraft type certified for more than one pilot unless, since the beginning of the past 24 calendar months, he has passed a proficiency check in the type of aircraft to be operated.
- (3) No person may act as PIC of an aircraft type certified for a single pilot unless, since the beginning of the 24 calendar months, he or she has passed a proficiency check with an authorised representative of the Authority.
- (4) The person conducting the proficiency checks shall ensure that each check duplicates the manoeuvres of the type rating practical test.
- (5) No person may act as CP of an aircraft type certified for more than one pilot unless, since the beginning of the 12 calendar months, he or she has-
  - (a) Become familiar with the aircraft systems, performance, normal and emergency procedures; and
  - (b) Logged 3 take-off and landings as the sole manipulator of the controls.

*Note: This subpart 8.4.8 does not apply to pilots engaged in commercial air transport operations. Those requirements are outlined in Part 8.10.19 and 8.10.20 of these Directives.*

**8.4.9 FLIGHTCREW – LIMITATIONS ON USE OF SERVICES FOR COMMERCIAL AIR TRANSPORT**

- (1) No person may serve as a flight crewmember, nor may any AOC holder use a flight crewmember in commercial air transport unless that person is otherwise qualified for the operations for which he is to be used.
- (2) The qualifications, training and proficiency checking for flight crewmembers engaged in commercial air transport operations are provided in Subpart 8.10 of this Part.
- (3) The recency and proficiency requirements for flight crewmembers engaged in commercial air transport operations are specified in 8.4.10 – 8.4.14 of these Directives.

**8.4.10 PILOT RECENCY – TAKEOFF AND LANDINGS, COMMERCIAL AIR TRANSPORT OPERATIONS**

- (1) No person may act as PIC or co-pilot of an aircraft carrying passengers unless, within the preceding 90 days that pilot has:
  - (a) Made 3 take-offs and landings as the sole manipulator of the flight controls in an aircraft of the same category and class and if a type rating is required, of the same type or in a flight simulation training device approved for the purpose.
  - (b) For a tail wheel aeroplane, made the 3 take-offs and landings in a tail wheel aeroplane with each take-off and landing to a full stop.
  - (c) For night operations, made the 3 take-offs and landings required by paragraph (1) (a) at night with each take-off and landing to a full stop.
- (2) A pilot who has not met the recency of experience for take-offs and landings shall satisfactorily complete a requalification curriculum acceptable to the Authority.
- (3) Requirements of paragraphs (1) and (2) may be satisfied in a flight simulator approved by the Authority.

**8.4.11 PILOT RECENCY – IFR OPERATIONS**

- (1) No person may act as a pilot under IFR, nor in IMC, unless he has, within the past 6 calendar-months—
  - (a) Logged at least 6 hours of instrument flight time including at least 3 hours in flight in the category of aircraft; and
  - (b) Completed at least 6 instrument approaches.
- (2) A pilot who has completed an instrument proficiency check with an authorised representative of the Authority retains currency for IFR operations for 6 calendar-months following that check.

**8.4.12 PILOT RECENCY - CRUISE RELIEF PILOT**

- (1) No person may act as a cruise relief pilot in commercial air transport unless within the preceding 90 days, that pilot has either:
  - (a) Operated as pilot-in-command, co-pilot or cruise relief pilot on the same type of aircraft; or
  - (b) Carried out flying skill refresher training including normal, abnormal and emergency procedures specific to cruise flight on the same type of aircraft

or in a flight simulator approved for the purpose, and has practiced approach and landing procedures, where the approach and landing procedure practice may be performed as the pilot who is not flying the aircraft.

- (2) When a cruise relief pilot is flying several variants of the same type of aircraft or different types of aircraft with similar characteristics in terms of operating procedures, systems, and handling, the recency or refresher training may be combined, if approved by the Authority.

#### **8.4.13 PILOT RECENCY – NIGHT VISION GOGGLES**

No person may act as PIC in a night vision goggle operation unless that pilot has completed the required training in Part 2 of these Flight Standards Directives, and has performed and logged the following tasks as the sole manipulator of the controls on a flight during a night vision goggle operation, within the preceding 60 days to carry passengers on board, or within the preceding 120 days to act as PIC without passengers on board:

- (a) 3 take-offs and landings, with each take-off and landing including a climb out, cruise, descent, and approach phase of flight, if the pilot intends to use night vision goggles during the take-off and landing phase of flight;
- (b) 3 hovering tasks, if the pilot intends to use night vision goggles when operating helicopters or powered-lifts during the hovering phase;
- (c) 3 area departure and area arrival tasks;
- (d) 3 tasks of transitioning from aided night flight to unaided night flight and back to aided night flight.
- (e) 3-night vision goggle operations, or when operating helicopters or powered-lifts, 6-night vision goggle operations, or
- (f) Successfully completed the night vision goggles proficiency check required in Part 2 of these Flight Standards Directives, with the Authority.

#### **8.4.14 PILOT PROFICIENCY – COMMERCIAL AIR TRANSPORT OPERATIONS**

- (1) The qualification, training and proficiency checking requirements for flight crewmembers engaged in commercial air transport are specified in Subpart 8.10. Additionally, the following requirements in (2) – (3) shall be met, as applicable.
- (2) **All pilots.** No person shall act as a pilot of an aircraft unless he has successfully passed two proficiency checks within the preceding 12 months, conducted by an authorised representative of Authority. The proficiency check requirement -

- (a) Shall ensure that piloting technique and the ability to execute emergency procedures is checked in such a way as to demonstrate the pilot's competence on each type or variant of a type of aircraft, including where the operations may be conducted under IFR;
  - (b) Shall not be satisfied by the conduct of two checks that are similar, and which occur within a period of four consecutive months;
  - (c) May be combined for several variants of the same type of aircraft or different types of aircraft with similar characteristics in terms of operating procedures, systems and handling, if approved by the Authority.
  - (d) The aircraft pilot proficiency check and the instrument proficiency check must be accomplished by the Authority or an authorised representative of the Authority in the category, class and type of aircraft to be operated, or in a flight simulation training device approved for the purpose, to the requirements specified in 8.10.19 and IS: 8.10.19 and the applicable skill test in Part 2 of these Flight Standards Directives.
- (3) **Night vision goggles operation.** No person may act as PIC in a night vision goggle operation unless, the pilot has completed the required training specified in Part 2, 2.3.2.9 of these Directives, and meets either the:
- (a) Currency requirements in Part 8.4.13(a) above, or
  - (b) Passes the night vision goggles proficiency check required by Part 8.4.13(b) above with the Authority or an authorised representative of the Authority.

#### **8.4.15 PILOT PRIVILEGES AND LIMITATIONS**

A pilot may conduct operations only within the general privileges and limitations of each licence, rating or authorisation as specified in Part 2 of these Flight Standards Directives.

#### **8.4.16 SPECIFIC APPROVALS – GENERAL AVIATION OPERATIONS**

The pilot-in-command shall not conduct operations for which a specific approval is required unless such approval has been issued by the State of Registry. Specific approvals shall follow the layout and contain at least the information specified in IS 8.4.16

## **8.5 CREW MEMBER DUTIES AND RESPONSIBILITIES**

### **8.5.1 AUTHORITY AND RESPONSIBILITY OF THE PIC**

- (1) The PIC shall be responsible for the operations, safety and security of the aircraft and for the safety of all persons and cargo on board, from the moment the doors are closed and aircraft is ready to move for the purpose of taking off until the moment it finally comes to rest at the end of the flight and the engine(s) used as primary propulsion units are shut down.
- (2) The PIC of an aircraft shall have final authority as to the operation of the aircraft while he or she is in command.
- (3) The PIC of an aircraft shall, whether manipulating the controls or not, be responsible for the operation of the aircraft in accordance with the rules of the air, except that the PIC may depart from these rules in emergency circumstances that render such departure absolutely necessary in the interest of safety.

### **8.5.2 COMPLIANCE WITH LOCAL LEGISLATION**

- (1) The PIC shall comply with the relevant laws, Directives and procedures of the States in which the aircraft is operated.
- (2) If an emergency situation which endangers the safety of the aircraft or persons necessitates the taking of action which involves a violation of local regulations or procedures, the PIC shall-
  - (a) Notify the appropriate local authority without delay;
  - (b) Submit a report of the circumstances, if required by the State in which the incident occurs; and
  - (c) Submit a copy of this report to the State of Registry.
- (3) Each PIC shall submit reports specified in paragraph (2) to the Authority within 10 days in the form prescribed.

### **8.5.3 NEGLIGENCE OR RECKLESS OPERATIONS OF THE AIRCRAFT**

No person may operate an aircraft in a negligent or reckless manner so as to endanger life or property of others.

### **8.5.4 FITNESS OF FLIGHT CREW MEMBERS**

- (1) No person may act as PIC or in any other capacity as a required flight crewmember when they are aware of any decrease in their medical fitness

which might render them unable to safely exercise the privileges of his or her licence.

- (2) The PIC shall be responsible for ensuring that a flight is not-
  - (a) Commenced if any flight crew member is incapacitated from performing duties by any cause such as injury, sickness, fatigue, the effects of alcohol or drugs; or
  - (b) Continued beyond the nearest suitable aerodrome if 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.

#### **8.5.5 PROHIBITION ON USE OF PSYCHOACTIVE SUBSTANCES, INCLUDING NARCOTICS, DRUGS OR ALCOHOL**

No person may act or attempt to act as a crew member of a civil aircraft-

- (a) Within 8 hours after the consumption of any alcoholic beverage, while under the influence of alcohol, or while using any drug that affects the person's faculties in any way contrary to safety.
- (b) A crewmember shall, up to 8 hours before or immediately after acting or attempting to act as a crewmember, on the request of a law enforcement officer or the Authority, submit to a test to indicate the presence of alcohol or narcotic drugs in the blood.
- (c) Whenever there is a reasonable basis to believe that a person may not be in compliance with paragraph (a) above, and upon the request of the Authority, that person shall furnish the Authority or authorise any clinic, doctor, or other person to release to the Authority, the results of each blood test taken for presence of alcohol or narcotic substances up to 8 hours before or immediately after acting or attempting to act as a crewmember.
- (d) Any test information provided to the Authority under the provisions of this section may be used as evidence in any legal proceedings.

#### **8.5.6 FLIGHT CREWMEMBER USE OF SEAT BELTS AND SHOULDER HARNESES**

- (1) Each flight crewmember shall have his or her seat belts fastened during take-off and landing and all other times when seated at his or her station.
- (2) Each flight crewmember occupying a station equipped with a shoulder harness shall fasten that harness during take-off and landing, except that the shoulder harness may be unfastened if the crew member cannot perform the required duties with the shoulder harness fastened.

- (3) Each occupant of a seat equipped with a combined safety belt and shoulder harness shall have the combined safety belt and shoulder harness properly secured about that occupant during the take-off and landing and be able to properly perform assigned duties.
- (4) At each unoccupied seat, the safety belt and shoulder harness, if installed, shall be secured so as not to interfere with crewmembers in the performance of their duties or with the rapid egress of occupants in an emergency.

#### **8.5.7 FLIGHT CREWMEMBERS AT DUTY STATIONS**

- (1) Each required flight crewmember shall remain at the assigned duty station during take-off and landing and critical phases of flight.
- (2) Each flight crew member shall remain at his station during all phases of flight unless-
  - (a) Absence is necessary for the performance of his duties in connection with the operation;
  - (b) Absence is necessary for physiological needs, provided one qualified pilot remains at the controls at all times; or
  - (c) The crewmember is taking a rest period and a qualified relief crew member replaces him at the duty station:
    - (i) For the assigned PIC during the en route cruise portion of the flight by a pilot who holds an airline transport pilot licence and an appropriate type rating, and who is currently qualified as PIC or CP, and is qualified as PIC of that aircraft during the en route cruise portion of the flight; and
    - (ii) In the case of the assigned CP, by a pilot qualified to act as PIC or Co- Pilot of that aircraft during en route operations.

#### **8.5.8 REQUIRED CREWMEMBER EQUIPMENT**

- (1) Each crewmember involved in night operations shall have a flashlight at his or her station.
- (2) Each pilot crewmember shall have at his or her station an aircraft checklist containing the normal, abnormal and emergency procedures relating to the operation of the aircraft for that type.



- (3) Each pilot crew member shall have at his or her station current and suitable charts to cover the route of the proposed flight and any route along which it is reasonable to expect that the flight may be diverted.
- (4) Each flight crew member assessed as fit to exercise the privileges of a licence subject to the use of suitable correcting lenses, shall have a spare set of the correcting lenses readily available when performing as a required crew member in commercial air transport.
- (5) Each member of the crew shall have a survival suit if such suit is required by Part 7 of these Flight Standards Directives to be carried.

#### **8.5.9 COMPLIANCE WITH CHECKLISTS**

- (1) The PIC shall ensure that the flight crew follows the approved checklist procedures when operating the aircraft.
- (2) The checklists provided in Aircraft Operating Manual shall be used by flight crews prior to, during and after all phases of operations and in emergency to ensure compliance with the operating procedures contained therein and the Aircraft Flight Manual or other documents associated with the Certificate of Airworthiness and otherwise in the Operations Manual are followed.
- (3) The design and utilization of checklists shall observe Human Factors principles.

#### **8.5.10 SEARCH AND RESCUE INFORMATION**

For all international flights, the PIC shall have on board the aircraft essential information concerning the search and rescue services in the areas over which they intend to operate the aircraft.

#### **8.5.11 PRODUCTION OF AIRCRAFT AND FLIGHT DOCUMENTATION**

The PIC shall, within a reasonable time of being requested to do so by a person authorised by the Authority, produce to that person the documentation required to be carried on the aircraft.

#### **8.5.12 LOCKING OF FLIGHT DECK COMPARTMENT DOOR: COMMERCIAL AIR TRANSPORT**

- (1) The PIC shall ensure that the flight deck compartment door (if installed) is locked at all times during passenger-carrying commercial air transport operations, except as necessary to accomplish approved operations or to provide for emergency evacuation.

- (2) No person may operate a passenger carrying aeroplane having a maximum certificated take-off mass in excess of 45 000 kg or with a passenger capacity greater than sixty (60) unless the flight crew compartment door is closed and locked –
  - (a) From the time all external doors are closed following embarkation; until
  - (b) Any such door is opened for disembarkation; except
  - (c) When necessary to permit access and egress by authorised persons.

#### **8.5.13 ADMISSION TO THE FLIGHT DECK: COMMERCIAL AIR TRANSPORT**

- (1) No person may admit any person to the flight deck of an aircraft engaged in commercial air transport operations unless the person being admitted is-
  - (a) An operating crew member;
  - (b) A representative of the authority responsible for certification, licensing or inspection, if this is required for the performance of his or her official duties; or
  - (c) Permitted by and carried out in accordance with instructions contained in the Operations Manual.
- (2) The PIC shall ensure that-
  - (a) In the interest of safety, admission to the flight deck does not cause distraction and or interference with the flight's operations; and
  - (b) All persons carried on the flight deck are made familiar with the relevant safety procedures.

#### **8.5.14 ADMISSION OF INSPECTOR TO THE FLIGHT DECK**

Whenever, in performing the duties of conducting an inspection, an inspector from the Authority presents Aviation Safety Inspector's Credential to the PIC, the PIC shall give the inspector free and uninterrupted access to the flight deck of the aircraft.

#### **8.5.15 DUTIES DURING CRITICAL PHASES OF FLIGHT: COMMERCIAL AIR TRANSPORT**

- (1) No flight crew member may perform any duties during a critical phase of flight except those required for the safe operation of the aircraft.

- (2) No PIC may permit a flight crew member to engage in any activity during a critical phase of flight which could distract or interfere with the performance of their assigned duties.

#### **8.5.16 MANIPULATION OF THE CONTROLS: COMMERCIAL AIR TRANSPORT**

- (1) No PIC may allow an unqualified person to manipulate the controls of an aircraft during commercial air transport operations.
- (2) No person may manipulate the controls of an aircraft during commercial air transport operations unless he is qualified to perform the applicable crew member functions and is authorised by the AOC holder.

#### **8.5.17 SIMULATED ABNORMAL SITUATIONS IN FLIGHT – COMMERCIAL AIR TRANSPORT**

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

#### **8.5.18 COMPLETION OF THE TECHNICAL LOGBOOK: COMMERCIAL AIR TRANSPORT AND AERIAL WORK**

The PIC shall ensure that all portions of the technical logbook are completed at the appropriate points before, during and after flight operations, including:

- (a) the journey logbook
- (b) the aircraft maintenance records section

*Note: See Subparts 9: 9.3.5 and 9.4.8 for details of the journey logbook and the aircraft maintenance records section of the technical log.*

#### **8.5.19 REPORTING MECHANICAL IRREGULARITIES**

The PIC shall ensure that all mechanical irregularities occurring during flight time are-

- (a) For general aviation operations, entered in the aircraft logbook and disposed of in accordance with the MEL or other approved or prescribed procedure.
- (b) For commercial air transport operations and aerial work operations, entered in the aircraft maintenance records section of the technical log for the aircraft at the appropriate points before, during and at the end of that flight time.

### 8.5.20 REPORTING OF FACILITY AND NAVIGATION AID INADEQUACIES

Each crewmember shall report, without delay, any inadequacy or irregularity of a facility or navigational aid observed in the course of operations to the person responsible for that facility or navigational aid.

### 8.5.21 REPORTING OF HAZARDOUS CONDITIONS

- (1) The PIC shall report to the appropriate ATC facility, without delay and with enough detail to be pertinent to the safety of other aircraft, any hazardous flight conditions encountered en route, including those associated with meteorological conditions.
- (2) The PIC shall report the runway braking action special air-report (AIREP) when the runway braking action encountered is not as good as reported.

*Note.— The procedures for making special air-reports regarding runway braking action are contained in the Procedures for Air Navigation Services — Air Traffic Management (PANS-ATM, Doc 4444), Chapter 4 and Appendix 1, Instructions for air-reporting by voice communication.*

### 8.5.22 REPORTING OF INCIDENTS

- (1) **Air Traffic report.** The PIC shall submit, without delay, an air traffic incident report whenever an aircraft in flight has been endangered by-
  - (a) A near collision with another aircraft or object;
  - (b) Faulty air traffic procedures or lack of compliance with applicable procedures by ATC or by the flight crew; or
  - (c) A failure of ATC facilities.
- (2) **Birds.** In the event a bird constitutes an in-flight hazard, or an actual bird strike the PIC shall, without delay-
  - (a) Inform the appropriate ground station whenever a potential bird hazard is observed; and
  - (b) Submit a written bird strike report after landing to the oversight Authority in the State of registry.
- (3) **Dangerous Goods.** The PIC shall inform the appropriate ATC facility, if the situation permits, when an in-flight emergency occurs involving dangerous goods on board.
- (4) **Unlawful Interference.** The PIC shall submit a report to the local authorities and to the Authority, without delay, following an act of unlawful interference with the crew members on board an aircraft.

**8.5.23 ACCIDENT NOTIFICATION**

- (1) The PIC shall notify the nearest appropriate authority, by the quickest available means, of any accident involving his aircraft that results in serious injury or death of any person, or substantial damage to the aircraft or property.
- (2) The PIC shall submit a report to the Authority of any accident which occurred while he was responsible for the flight.

**8.5.24 OPERATION OF COCKPIT VOICE AND FLIGHT DATA RECORDERS**

- (1) The PIC shall ensure that whenever an aircraft has flight recorders installed, those recorders are operationally checked and operated continuously from the instant-
  - (a) For a flight data recorder, the aircraft begins its take-off roll until it has completed the landing roll; and
  - (b) For a cockpit voice recorder, the initiation of the pre-start checklist until the end of the securing aircraft checklist.
- (2) The PIC may not permit a flight data recorder or cockpit voice recorder to be disabled, switched off or erased during flight, so as to preserve the data for an accident or incident investigation.
- (3) In event of an accident or incident, the PIC shall act to preserve the recorded data for subsequent investigation

**8.5.25 CREW MEMBER OXYGEN: MINIMUM SUPPLY AND USE**

- (1) The PIC shall ensure that breathing oxygen and masks are available to crew members in sufficient quantities for all flights at such altitude where a lack of oxygen might result in impairment of the faculties of crew members.
- (2) In no case shall the minimum supply of oxygen on board the aircraft be less than that prescribed by the Authority.

*Note: the requirements for oxygen supply and use are prescribed in Part 7, 7.8.12, required instruments and equipment.*

- (3) The PIC shall ensure that all flight crew members, when engaged in performing duties essential to the safe operation of an aircraft in-flight, use breathing oxygen continuously at cabin altitudes exceeding 10,000 ft. (3000 m) for a period in excess of 30 minutes and whenever the cabin altitude exceeds 13,000 ft.(4000 m).
- (4) One pilot at the controls of a pressurised aircraft in flight shall wear and use an oxygen mask-

- (a) For general aviation operations, at flight levels above 350, if there is no other pilot at their duty station; and
- (b) For commercial air transport operations, at flight levels above 250, if there is no other pilot at their duty station.

#### **8.5.26 PORTABLE ELECTRONIC DEVICES**

No PIC or SCCM may permit any person to use, nor may any person use a portable electronic device on board an aircraft that may adversely affect the performance of aircraft systems and equipment unless-

- (a) For IFR operations other than commercial air transport, the PIC allows such a device prior to its use; or
- (b) For commercial air transport operations, the AOC holder makes a determination of acceptable devices and publishes that information in the Operations Manual for the crew member's use; and
- (c) The PIC informs passengers of the permitted use.

#### **8.5.27 OPERATIONAL MANAGEMENT**

- (1) Where an operator has an operating base in a State other than the State of Registry, the operator shall notify the State in which the operating base is located.
- (2) Safety and security oversight shall be coordinated between the State in which the operating base is located and the State of Registry.

#### **8.5.28 CARRIAGE OF DANGEROUS GOODS**

No person shall carry dangerous goods in an aircraft registered in Ghana or operated in Ghana except:

- (a) With the written permission of the Authority, subject to Part 18 of these Flight Standards Directives and any condition the Authority may impose in granting such permission; and
- (b) In accordance with the Technical Instructions for the Safe Transport of Dangerous Goods by Air issued by the Council of International Civil Aviation Organisation and with any variations to those instructions that the Authority may from time to time mandate and provide notification of, to ICAO.

**8.5.29 MICROPHONES**

- (1) No required flight crewmember of an AOC holder operating aircraft, shall communicate with another flight crewmember and air traffic service below the transition level or altitude without using a boom or throat microphone.
- (2) No required flight crewmember of a general aviation operator in an aeroplane, helicopter or powered lift aircraft, shall communicate with another flight crewmember and air traffic service below the transition level or altitude without using a boom or throat microphone.
- (3) No required flight crewmember of an aerial work operation, shall communicate with another flight crewmember and air traffic service below the transition level or altitude, as applicable to the mission without using a boom or throat microphone.

**8.6 FLIGHT PLANNING AND SUPERVISION****8.6.1 FLIGHT PLANS****8.6.1.1 SUBMISSION OF A FLIGHT PLAN**

- (1) Prior to operating one of the following, a pilot shall file a VFR or IFR flight plan, as applicable, for –
  - (a) Any flight (or portion thereof) to be provided with air traffic control service;
  - (b) Any IFR flight within advisory airspace;
  - (c) Any flight within or into designated areas, or along designated routes, when so required by the appropriate ATC authority to facilitate the provision of flight information, alerting and search and rescue services;
  - (d) Any flight within or into designated areas, or along designated routes when so required by the appropriate ATC authority to facilitate co-ordination with appropriate military units or with ATC facilities in adjacent states in order to avoid the possible need for interception for the purpose of identification; and
  - (e) Any flight across international borders.
- (2) The PIC shall submit a flight plan before departure or during flight, to the appropriate ATC facility, unless arrangements have been made for submission of repetitive flight plans.
- (3) Unless otherwise prescribed by the appropriate ATC authority, a pilot should submit a flight plan to the appropriate ATC facility-
  - (a) At least sixty minutes before departure; or

- (b) If submitted during flight at a time which will ensure its receipt by the appropriate ATC facility at least ten minutes before the aircraft is estimated to reach-
  - (i) The intended point of entry into a control area or advisory area; or
  - (ii) The point of crossing an airway or advisory route.

### **8.6.1.2 AIR TRAFFIC CONTROL FLIGHT PLAN: COMMERCIAL AIR TRANSPORT**

No person may take off an aircraft in commercial air transport operations, if an ATC flight plan has not been filed, except as authorized by the Authority.

### **8.6.1.3 CONTENTS OF A FLIGHT PLAN**

Each person filing an IFR or VFR flight plan shall include in it the following information –

- (a) Aircraft identification;
- (b) Flight rules and type of flight;
- (c) Number and type(s) of aircraft and wake turbulence category;
- (d) Equipment
- (e) Departure aerodrome and alternate (if required);
- (f) Estimated off-block time;
- (g) Cruising speed(s);
- (h) Cruising level(s);
- (i) Enroute alternate aerodrome (if required);
- (j) Route to be followed;
- (k) The number, colour and type of life rafts and pyrotechnics;
- (l) Details of emergency medical supplies, water supplies;
- (m) The type and frequencies of the emergency portable radio equipment;
- (n) Destination aerodrome and alternate (if required);
- (o) Fuel endurance;
- (p) Total number of persons on board;
- (q) Emergency and survival equipment; and
- (r) Other information.

**Note:** *Whatever the purpose for which it is submitted, a flight plan shall contain information, as applicable, on relevant items up to and including “alternate*



*aerodrome(s)” regarding the whole route or the portion thereof for which the flight plan is submitted.*

#### **8.6.1.4 PLANNED RECLEARANCE**

If during flight planning a person determines that there is a possibility, depending on fuel endurance, that a flight may be able to change destinations and still comply with minimum fuel supply planning requirements, that person shall notify the appropriate ATC facility of this possibility when the flight plan is submitted.

**Note:** *The intent of this provision is to facilitate a new clearance to a revised destination normally beyond the filed destination aerodrome.*

#### **8.6.1.5 CHANGES TO A FLIGHT PLAN**

- (1) When a change occurs to a flight plan submitted for an IFR flight or a VFR flight operated as a controlled flight, the pilot shall report that change as soon as practicable to the appropriate ATC facility.
- (2) ***In-flight operational instructions.***
  - (a) Operational instructions involving a change in the ATS flight plan shall, when practicable, be coordinated with the appropriate ATS unit before transmission to the aircraft.
  - (b) For VFR flights other than those operated as controlled flights, the PIC shall report significant changes to a flight plan as soon as practicable to the appropriate ATC facility.

**Note:** *Information submitted prior to departure regarding fuel endurance or total number of persons carried on board, if incorrect at time of departure constitutes a significant change and shall be reported.*

#### **8.6.1.6 CLOSING A FLIGHT PLAN**

- (1) The PIC shall make a report of arrival either in person or by radio to the appropriate ATC facility at the earliest possible moment after landing at the destination aerodrome, unless ATC automatically closes a flight plan.
- (2) When a flight plan has been submitted for a portion of a flight, but not the arrival at destination, the pilot shall close that flight plan en route with the appropriate ATC facility.
- (3) When no ATC facility exists at the arrival aerodrome, the pilot shall contact the nearest ATC facility to close the flight plan as soon as practicable after landing and by the quickest means available.
- (4) Pilots shall include the following elements of information in their arrival reports-

- (a) Aircraft identification;
- (b) Departure aerodrome;
- (c) Destination aerodrome (only in the case of a diversionary landing);
- (d) Arrival aerodrome; and
- (e) Time of arrival

## **8.6.2 FLIGHT PLANNING AND PREPARATION**

### **8.6.2.1 AIRCRAFT AIRWORTHINESS AND SAFETY PRECAUTIONS**

- (1) The PIC may not operate a civil aircraft in flight until satisfied that-
  - (a) The aircraft is airworthy, duly registered and that appropriate certificates are aboard the aircraft;
  - (b) The instruments and equipment installed in the aircraft are appropriate, taking into account the expected flight conditions;
  - (c) Any necessary maintenance has been performed and a maintenance release if applicable, has been issued in respect to the aircraft;
  - (d) 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;
  - (e) Any load carried is properly distributed and safely secured;
  - (f) A check has been completed indicating that the operating limitations of Part 8.7 can be complied with for the flight to be undertaken; and
  - (g) The standards of 8.6.2.20 relating to operational flight planning have been complied with.
- (2) For commercial air transport operations the PIC shall certify by signing the aircraft technical log that he or she is satisfied that the requirements of paragraph (1) have been met for particular flight.
- (3) Completed flight preparation forms shall be kept by an operator for a period of three months.

### **8.6.2.2 ADEQUACY OF OPERATING FACILITIES**

- (1) No person may commence a flight unless it has been determined by every reasonable means available that the ground and/or water areas and facilities

available and directly required for such flight and for the safe operation of the aircraft and protection of the passengers, are adequate for the type of operation under which the flight is to be conducted and are adequately operated for this purpose.

- (2) An operator shall ensure that any inadequacy of facilities observed in the course of operations is reported to the Authority responsible for them, without undue delay.
- (3) Subject to their published conditions of use, aerodromes and their facilities shall be kept continuously available for flight operations during their published hours of operations, irrespective of meteorological conditions.
- (4) An operator shall, as part of its safety management system, assess the level of rescue and firefighting service (RFFS) protection available at any aerodrome intended to be specified in the operational flight plan in order to ensure that an acceptable level of protection is available for the aeroplane intended to be used.
- (5) Information related to the level of RFFS protection that is deemed acceptable by the operator shall be contained in the operations manual.

**Note:** “Reasonable means” denotes use, at the point of departure, of information available to the PIC either through official information published by the aeronautical information services or readily obtainable in other sources.

### **8.6.2.3 METEOROLOGICAL REPORT AND FORECASTS**

- (1) Before commencing a flight, the PIC shall be familiar with all available meteorological information appropriate to the intended flight.
- (2) The PIC shall include, during preparation for a flight away from the vicinity of the place of departure, and for every flight under the instrument flight rules-
  - (a) A study of available current meteorological reports and forecasts; and
  - (b) The planning of an alternative course of action to provide for the eventuality that the flight cannot be completed as planned because of weather condition.

### **8.6.2.4 METEOROLOGICAL LIMITATIONS FOR VFR FLIGHTS**

No person shall commence a flight to be conducted in accordance with VFR unless available current meteorological reports, or a combination of current reports and forecast, indicate that the meteorological conditions along the route, or that part of the route to be flown under VFR, will, at the appropriate time, allow VFR operations.

**8.6.2.5 IFR DESTINATION AERODROMES**

No person may conduct an IFR flight unless—

- (a) At the time of take-off, the meteorological conditions at the departure aerodrome are at or above the operator's established aerodrome operating minima for that operation; and
- (b) At the time of take-off or point of in-flight re-planning, current meteorological reports or a combination of current reports and forecasts indicate that the meteorological conditions will be, at the estimated time of use, at or above the operator's established aerodrome operating minima for that operation.

*Note: A partial exception is granted for commercial air transport IFR flight planning, to the effect that the meteorological conditions at the destination do not have to be at or above the approach minima to release and commence a flight, as long as the designated alternate aerodrome meets the IFR meteorological selection criteria.*

**8.6.2.6 IFR DESTINATION ALTERNATE REQUIREMENT**

- (1) No person may commence an IFR flight in an aeroplane without at least one destination alternate aerodrome listed in the flight plan unless—
  - (a) The duration of the flight and the meteorological conditions prevailing are such that there is reasonable certainty that, at the ETA at the aerodrome of intended landing, and for a reasonable period before and after such time, the approach and landing may be made under visual meteorological conditions; or
  - (b) The aerodrome of intended landing is isolated and there is no suitable destination alternate aerodrome, and
  - (c) There is a standard instrument approach procedure prescribed for the aerodrome of intended landing by the jurisdictional authorities; and
  - (d) Available current meteorological information indicates that the following meteorological conditions will exist from two hours before to two hours after the ETA—
    - (i) A cloud base of at least 600 m (2000 ft.) above the airport elevation; and
    - (ii) Visibility will be at least 3 km.
- (2) No person may commence an IFR flight –
  - (a) without at least one destination alternate aerodrome listed in the flight plan unless—
    - (i) 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 there is a reasonable certainty that

- (A) the approach and landing may be made under visual meteorological condition; and
  - (B) 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
- (ii) the aerodrome is isolated, and
- (A) for each flight into an isolated aerodrome a point of no return shall be determined; and
  - (B) a flight to be conducted to an isolated aerodrome shall not be continued past the point of no return unless a current assessment of meteorological conditions, traffic, and other operational conditions indicate that a safe landing can be made at the estimated time of use.
- (iii) The fuel requirements of Subpart 8.6.2.15(2)(d)(iv) are met.
- (b) without at least two destination alternate aerodromes listed in the operational and ATC flight plan when, for the destination aerodrome –
- (i) meteorological condition as at the estimated time of use will be below the operator’s established aerodrome operating minima for that operation; or
  - (ii) meteorological information is not available.

*Note 1: 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.*

*Note 2: ICAO Doc 9976, Flight Planning and Fuel Management Manual, contains guidance on planning operations to isolated aerodromes.*

- (3) No person may commence an IFR flight in a helicopter,
- (a) where no alternate aerodrome is required unless,
    - (i) The operation is conducted as general aviation: and
    - (ii) Available current meteorological information indicates that the following meteorological conditions will exist from two hours before to two hours after the ETA:
      - (A) A cloud base of at least 300 m (1000 ft.) above the aerodrome elevation, or at least 120 m (400 ft.) above the lowest applicable approach

minimum, whichever is higher; and

(B) Visibility will be of at least 3 km.

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

- (b) without at least one destination alternate heliport listed in the flight plan unless the available information indicates that conditions, at the heliport of intended landing and at least one alternate heliport will, at the ETA, be at or above the heliport operating minima.
- (4) No person may commence an IFR flight in a helicopter
- (a) without at least one destination alternate heliport listed in the flight plan unless the available information indicates that conditions, at the heliport of intended landing, and for a reasonable period before and after such time, the approach and landing may be made under visual meteorological conditions as prescribed, or
  - (b) without at least two destination alternate heliports, forecast to be at or above the helicopter operating minima, listed in the operational and ATC flight plan when, at the time of flight departure, the intended heliport destination is forecast to be below the helicopter operating minima; or
  - (c) If the heliport of intended landing is isolated and no suitable alternate is available, in which case a point of no return shall be determined.
- (5) The ceiling and visibility requirements for operations conducted in accordance with paragraphs (1) – (4) may be reduced upon approval of the Authority for other categories of aircraft.

#### **8.6.2.7 IFR ALTERNATE AERODROME SELECTION CRITERIA**

- (1) If alternate minimums are published, no PIC shall designate an alternate aerodrome in an IFR flight plan unless the current available forecast indicates that the meteorological conditions at that alternate at the ETA –
- (a) Will (for All aircraft) be at or above those published alternate minimums upon take-off from the departing aerodrome, or
  - (b) Will (for AOC holders) be at or above the operators established minima for that operation upon
    - (i) take-off from the departing aerodrome, or
    - (ii) the point of in-flight re-planning.

- (2) If alternate minimums are not published, and if there is no prohibition against using the aerodrome as an IFR planning alternate, each PIC shall ensure that the meteorological conditions at that alternate at the ETA will be at or above—
- (a) For aeroplanes:
    - (i) For a precision approach procedure, a ceiling of at least 180 m (600 ft.) and visibility of not less than 3 km (2 statute miles); or
    - (ii) For a non-precision approach procedure, a ceiling of at least 240 m (800 ft.) and visibility of not less than 5 km (3 statute miles).
  - (b) For helicopters:
    - (i) Ceiling 60 m (200 ft.) above the minimum for the approach to be flown, and visibility at least 1 statute mile but never less than the minimum visibility for the approach to be flown: or
    - (ii) If no instrument approach procedure has been published and no special instrument approach procedure has been issued by the Authority to the operator, for the alternate airport, the ceiling and visibility minima are those allowing descent from the MEA, approach, and landing under basic VFR.
- (3) The Planning Minima Table will be used in selecting IFR alternate aerodromes.

| <b>Planning Minima</b><br><i>(Ceiling &amp; RVR/visibility required, if applicable)</i> |  |   |
|---|--|---|
| <b>Type of Approach</b>   | <b>Aerodrome with</b>  |   |
|   | at least 2 separate approach procedures based on 2 separate aids serving 2 separate runways<br><i>(See Note)</i> | at least 2 separate approach procedures based on 2 separate aids serving 1 runway or, at least 1 approach procedure based on 1 aid serving 1 runway |
| <b>Precision Approach CAT II III (ILS, MLS)</b>   | Precision Approach CAT I Minima  | Non-Precision Approach Minima   |
| <b>Precision Approach CAT I (ILS, MLS)</b>  | Non-Precision Approach Minima  | Circling minima or, if not available, non-precision approach minima plus 60 m (200 ft.)/1,000 m (3300 ft.)  |
| <b>Non-Precision Approach</b>   | The lower of non-precision approach minima plus 60 m (200 ft.)/1,000 m (3300 ft.) or circling minima             | The higher of non-precision approach minima plus 60 m (200 ft.)/1,000 m (3300 ft.) or circling minima   |
| <b>Circling Approach</b>  | Circling Minima  | Circling Minima   |

*Note: Runways on the same aerodrome are considered to be separate runways when they are separate landing surfaces which may overlay or cross such that if one of the runways is blocked, it will not prevent the planned type of operations on the other runway and each of the landing surfaces has a separate approach based on a separate aid.*

- (4) To ensure that an adequate margin of safety is observed in determining whether or not an approach and landing can be safely carried out at each alternate aerodrome, the operator shall specify appropriate incremental values for height of cloud base and visibility, acceptable to the Authority, to be added to the operator's established aerodrome operating minima.

*Note. — Guidance on the selection of these incremental values is contained in the Flight Planning and Fuel Management Manual (Doc 9976).*

- (5) The Authority shall approve a margin of time established by the operator for the estimated time of use of an aerodrome.

*Note. — Guidance on establishing an appropriate margin of time for the estimated time of use of an aerodrome is contained in the Flight Planning and Fuel Management Manual (Doc 9976).*

#### **8.6.2.8 OFF-SHORE ALTERNATES FOR HELICOPTER OPERATIONS (AOC) HOLDERS**

- (1) No person may designate an offshore alternate landing site—
  - (a) when it is possible to carry enough fuel to have an on-shore alternate landing site, or
  - (b) when the environment around the offshore alternate is hostile.

*Note: The selection of offshore alternates should be exceptional cases, the details of which have been approved by the Authority and should not include payload enhancement in IMC.*

- (2) Each person selecting an off-shore alternate landing site shall consider the following:
  - (a) Until the point of no return, using an on-shore alternate. The offshore alternate may be used only after a point of no return.
  - (b) Attaining one engine inoperative performance capability before arrival at the alternate.
  - (c) Guaranteeing helideck availability.
  - (d) The meteorological information at the helideck shall be available from a source approved by the Authority.
  - (e) For IFR operations, an instrument approach procedure shall be prescribed and available.
  - (f) Attaining mechanical reliability of critical control systems and critical



components when determining the suitability of the alternate.

*Note: The landing technique specified in the flight manual following control system failure may preclude the selection of certain helidecks as alternate aerodromes. The mechanical reliability of critical control systems shall be taken into account when determining the suitability and necessity for an offshore alternate.*

#### **8.6.2.9 TAKEOFF ALTERNATE AERODROMES**

- (1) No person may release or take-off an aircraft without a suitable take-off alternate specified in the flight plan if either –
  - (a) it would not be possible to return to the aerodrome of departure, or
  - (b) meteorological conditions at the aerodrome of departure are below the operator's established aerodrome landing minima for that operation.
- (2) Each operator shall ensure that each take-off alternate specified shall be located within the following flight time from the aerodrome of departure—
  - (a) For two-engine aeroplane, one-hour 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
  - (b) For three or more - engine aeroplane, two hours' flight time at an all engine operating cruising speed, determined from the aircraft operating manual, calculated in ISA and still-air conditions using the actual take-off mass; or
  - (c) For aircraft engaged in extended diversion time operations where an alternate aerodrome meeting the distance criteria of (2)(a) or (b) above is not available, the first available alternate aerodrome located within the distance of the operator's specified maximum diversion time considering the actual take-off mass.
- (3) The ceiling and visibility requirements for operations conducted in accordance with paragraphs (1) and (2) may be reduced upon approval of the Authority for—
  - (a) Commercial air transport where the Authority has approved alternate minima as an equivalent level of safety based on the results of a specific safety risk assessment demonstrated by the operator, which contains the following:
    - (i) Capabilities of the operator;
    - (ii) Overall capability of the aeroplane and its systems;
    - (iii) Available aerodrome technologies, capabilities and infrastructure;
    - (iv) Quality and reliability of meteorological information;
    - (v) Identified hazards and safety risks associated with each alternate

aerodrome variation;

- (vi) Specific mitigation measures.

*Note 1: ICAO Doc 9859, Safety Management Manual, and ICAO Doc 9976, Flight Planning and Fuel Management Manual, contain guidance on performing a safety risk assessment and on determining variations, including examples of variations.*

*Note 2: All calculations are based on the one-engine-inoperative cruising speed according to the AFM/AOM in still air conditions based on the actual take-off mass.*

#### **8.6.2.10 MAXIMUM DISTANCE FROM AN ADEQUATE AERODROME FOR TWIN-ENGINEED AEROPLANES WITHOUT AN EDTO APPROVAL - AOC**

- (1) Unless the Authority has issued a specific approval for EDTO, an AOC holder shall not operate an aeroplane with two engines or more over a route which contains a point further from an adequate aerodrome than, in the case of—
- (a) **Turbine-powered aeroplanes** the distance flown in 60 minutes at the one-engine-inoperative cruise speed determined in accordance with paragraph (2).
- (b) **Piston-engine aeroplanes:**
- (i) The distance flown in 120 minutes at the one-engine-inoperative cruise speed determined in accordance with paragraph (2); or
- (ii) 555 km (300 nautical miles), whichever is less

*Note 1: The specific approval shall identify the applicable threshold time established for each particular aeroplane and engine combination.*

*Note 2: Guidance on the establishment of an appropriate threshold time and on specific approval of extended diversion time operations is contained in Attachment C and in the Extended Diversion Time Operations Manual (Doc 10085).*

- (2) An AOC holder shall determine a speed for the calculation of the maximum distance to an adequate aerodrome for each aeroplane with two or more engines type or variant operated, not exceeding  $V_{MO}$  based upon the true airspeed that the aeroplane can maintain with one-engine-inoperative under the following conditions:
- (a) International Standard Atmosphere;
- (b) Level Flight:
- (i) For turbine engine powered aeroplanes at:
- (A) FL 170; or
- (B) At the maximum flight level to which the aeroplane with one engine

inoperative, can climb and maintain, using the gross rate of climb specified in AFM, whichever is less.

- (ii) For piston - powered aeroplanes:
  - (A) FL 80; or
  - (B) At the maximum flight level to which the aeroplane, with one engine inoperative, can climb, and maintain, using the gross rate of climb specified in the AFM, whichever is less.
- (c) Maximum continuous thrust or power on the remaining operating engine;
- (d) An aeroplane mass not less than that resulting from:
  - (i) Take-off at sea level at maximum take-off mass until the time elapsed since take-off is equal to the applicable threshold prescribed in paragraph (1);
  - (ii) All engines climb to the optimum long range cruise altitude until the time elapsed since take-off is equal to the applicable threshold prescribed in subparagraph (a); and
  - (iii) All engines cruise at the long-range cruise speed at this altitude until the time elapsed since take-off is equal to the applicable threshold prescribed in paragraph (1).
- (3) An AOC holder shall ensure that the following data, specific to each type or variant, is included in the Operations Manual:
  - (a) The one-engine- inoperative cruise speed determined in accordance with paragraph (2); and
  - (b) The maximum distance from an adequate aerodrome determined in accordance with paragraph (1) and (2).

**Note:** *The speeds and altitudes (flight levels) specified above are only intended to be used for establishing the maximum distance from adequate aerodrome.*
- (4) Upon issuance of the specific approval for extended diversion time operations, the Authority shall specify the maximum diversion time granted to the Operator for each particular aeroplane and engine combination.

*Note. – Guidance on the conditions to be used when converting diversion times to distances is contained in Attachment C and in the Extended Diversion Time Operations Manual (Doc 10085).*

**8.6.2.11 REQUIREMENTS FOR EXTENDED DIVERSION TIME OPERATIONS – AEROPLANE (AOC)**

- (1) An AOC holder shall not conduct operations beyond the threshold distance determined in accordance with Subpart 8.6.2.10 unless approved to do so by the Authority.
- (2) When specifying the appropriate maximum diversion time for the Operator of a particular aircraft type engaged in extended diversion time operations, the Authority shall ensure that:

(a) For all aeroplanes,

- (A) the Operator has in place procedures to prevent the aeroplane being dispatched on a route with diversion times beyond the capability of EDTO significant system time limitation, if any indicated in the Aeroplane Flight Manual (either directly or by reference); and
- (B) the additional fuel required by Subpart 8.6.2.15 shall include the fuel necessary to comply with the EDTO critical fuel scenario as established by the Authority.

*Note.— Guidance on the conditions to be used when converting EDTO significant system time limitations to distances and on the consideration of the EDTO system time limitations at dispatch is contained in the Extended Diversion Time Operations Manual (Doc 10085).*

(b) For aeroplanes with two turbine engines, the aeroplane is EDTO certified and has verified the—

- (A) Reliability of the propulsion system;
- (B) Airworthiness certification for EDTO of the aeroplane type; and
- (C) EDTO maintenance programme.

(c) It has conducted a safety risk assessment which demonstrates how an equivalent level of safety will be maintained, taking into account the following:

- (i) Capabilities of the operator;
  - (ii) Overall reliability of the aeroplane;
  - (iii) Reliability of each time limited system;
  - (iv) Relevant information from the aeroplane manufacturer; and
  - (v) Specific mitigation measures.
- (3) Before conducting an EDTO flight, an AOC holder shall ensure that a suitable EDTO en-route alternate is available, within either the approved diversion time

or a diversion time based on MEL generated serviceability status of the aeroplane whichever is shorter.

- (4) No AOC holder shall commence a flight unless, during the possible period of arrival, the required en-route alternate aerodrome will be available, and the available information indicates that conditions at the aerodrome will be at or above the aerodrome operating minima approved for the operation.
- (5) No AOC holder shall conduct operations beyond 60 minutes, from a point on a route to an en-route alternate aerodrome unless it ensures that:
  - (a) For all aeroplanes;
    - (i) En-route alternate aerodromes are identified; and
    - (ii) The most up-to-date information is provided to the flight crew on identified en-route alternate aerodromes, including operational status and meteorological conditions;
  - (b) For aeroplanes with two turbine engines, the most up-to-date information provided to the flight crew indicates that conditions at identified en-route alternate aerodromes will be at or above the operator's established aerodrome operating minima for the operation at the estimated time of use.
  - (c) these requirements are incorporated into the operator's:
    - (i) operational control and flight dispatch procedures;
    - (ii) operating procedures; and
    - (iii) training programmes.
- (6) No AOC Holder shall proceed beyond the threshold time approved by the Authority unless:
  - (a) the identified en-route alternate aerodromes have been re-evaluated for availability; and
  - (b) the most up to date information indicates that, during the estimated time of use, conditions at those aerodromes will be at or above the operator's established aerodrome operating minima for that operation; or
  - (c) conditions are identified that would preclude a safe approach and landing at that aerodrome during the estimated time of use and an alternative course of action has been determined.

*Note: ICAO Annex 6, Part I, Attachment D contains guidance on the requirements of this provision*

**8.6.2.12 EN-ROUTE ALTERNATE AERODROMES: EDTO OPERATIONS**

- (1) The PIC shall ensure that the required en route alternates for EDTO are selected and specified in ATC flight plans in accordance with the EDTO diversion time approved by the Authority.
- (2) No person shall select an aerodrome as an EDTO en-route alternate aerodrome unless the appropriate weather reports or forecasts, or any combination thereof, indicate that during a period commencing 1 hour before and ending 1 hour after the expected time of arrival at the aerodrome, the weather conditions will be at or above the planning minima prescribed in the table below, and in accordance with the operator’s EDTO approval.
- (3) The ceiling and visibility requirements for operations conducted in accordance with paragraphs (1) and (2) may be reduced upon approval of the Authority for:
  - (a) Commercial air transport where the Authority has approved alternate minima as an equivalent level of safety based on the results of a specific safety risk assessment demonstrated by the operator, which contains the following:
    - (i) Capabilities of the operator;
    - (ii) Overall capability of the aeroplane and its systems;
    - (iii) Available aerodrome technologies, capabilities and infrastructure;
    - (iv) Quality and reliability of meteorological information;
    - (v) Identified hazards and safety risks associated with each alternate aerodrome variation; and
    - (vi) Specific mitigation measures.

**Note 1:** *The forecast weather criteria used in the selection of alternate aerodromes for IFR flight will also be used for the selection of EDTO alternates.*

| TYPE OF APPROACH                                  | PLANNING MINIMA  |   |
|---|--|---|
| (RVR/visibility required & ceiling if applicable) |  |   |
| Aerodrome with                                    |  |   |
|   | At least 2 separate approach procedures based on 2 separate aids serving 2 separate runways (See note 1) | At least 2 separate approach procedures based on 2 separate aids serving 1 runway or, at least 1 approach procedure based on 1 aid serving 1 runway |

|   |  |  |
|---|--|--|
| Precision Approach CAT II, III (ILS, MLS) | Precision Approach CAT 1 Minima  | Non – Precision Approach Minima  |
| Precision Approach CAT I (ILS, MLS)       | Non-Precision Approach Minima  | Circling minima or, if not available, non-precision approach minima plus 200 ft./1000m |
| Non Precision Approach                    | The lower of non-precision approach minima plus 200 ft./1000m or circling minima | The higher of circling minima or non – precision approach minima plus 200 ft./1000m    |
| Circling Approach                         | Circling Minima  |  |

**Note:** Runways on the same aerodrome and considered to be separate runways when they are separate landing surfaces which may overlay or cross such that if one of the runways is blocked, it will not prevent the planned type of operations on the other runway and each of the landing surfaces has a separate approach based on a separate aid.

#### 8.6.2.13 FUEL, OIL, AND OXYGEN PLANNING AND CONTINGENCY FACTORS

- (1) No person may commence a flight unless he takes into account the fuel, oil, and oxygen needed to ensure the safe completion of the flight, including any reserves to be carried for contingencies.
- (2) For aeroplanes in AOC operations, the amount of usable fuel to be carried shall, as a minimum, be based on:
  - (a) The following data –
    - (i) Current aeroplane-specific data derived from a fuel consumption monitoring system, if available; or
    - (ii) If current aeroplane-specific data are not available, data provided by the aeroplane manufacturer, and
  - (b) 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) ATC procedures, restrictions and anticipated delays; and
    - (v) The effects of deferred maintenance items and or configuration deviations.

- (c) Any other conditions that may delay the landing of the aeroplane or increase fuel, oil and or oxygen consumption.
- (3) For helicopters, each person computing the required minimum fuel and oil supply shall ensure that additional fuel and oil are carried to provide for the increased consumption that would result from any additional operating conditions in (2)(b) as applied to helicopters, and any of the following contingencies:
- (a) Expected winds or other meteorological conditions;
  - (b) Possible variations in ATC routings;
  - (c) Anticipated traffic delays;
  - (d) A complete instrument approach procedure and possible missed approach at destination;
  - (e) Loss of pressurization en route, if applicable;
  - (f) Loss of one power-unit en route; and
  - (g) Any other conditions that may delay the landing of the helicopter or increase fuel and oil consumption and or oxygen consumption (if applicable).
- (4) **In-flight fuel management.** The PIC shall—
- (a) Continually ensure that the amount of usable fuel remaining on board is not less than the fuel required to proceed to an aerodrome or heliport where a safe landing can be made with the planned final reserve fuel remaining upon landing.
  - (b) Request delay information from ATC when unanticipated circumstances may result in landing at the destination aerodrome or heliport 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 or heliport.
  - (c) Advise ATC of a minimum fuel state by declaring “**MINIMUM FUEL**” when, having committed to land at a specific aerodrome, the pilot calculates that any change to the existing clearance to that aerodrome or heliport may result in landing with less than planned final reserve fuel.
  - (d) Declare a situation of fuel emergency by broadcasting “**MAYDAY MAYDAY MAYDAY FUEL**”, when the calculated usable fuel predicted to be available upon landing at the nearest aerodrome or heliport where a safe landing can be made is less than the planned final reserve fuel.



**8.6.2.14 MINIMUM FUEL SUPPLY FOR VFR FLIGHTS**

- (1) **Aeroplane.** No person may commence a flight in an aeroplane under VFR unless, considering the wind and forecast weather conditions, there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed—
  - (a) For flights during the day, for at least 30 minutes thereafter; and
  - (b) For flights during the night, for at least 45 minutes thereafter.
- (2) **Helicopter.** No person may commence a flight in a helicopter under VFR unless, considering the wind and forecast weather conditions, there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed—
  - (a) For 20 minutes thereafter; and
  - (b) To have an additional amount of fuel sufficient to provide for the increased consumption on the occurrence of any of the potential contingencies specified by the operator to the satisfaction of the Authority.

**8.6.2.15 MINIMUM FUEL SUPPLY FOR IFR FLIGHTS**

- (1) **Aeroplanes.** No person may commence a flight under IFR unless there is enough fuel supply, considering meteorological conditions and any delays that are expected in flight, to—
  - (a) When a destination alternate aerodrome is required, fly from the aerodrome of intended landing to an alternate aerodrome, and after that, for at least 45 minutes at normal cruising altitude;
  - (b) When a destination alternate aerodrome is not required, fly to the aerodrome of intended landing and after that for at least 45 minutes at normal cruising altitude.
- (2) **[AOC] Aeroplanes.** No person may commence a flight under IFR, or continue past the point of in-flight re-planning, unless there is enough fuel supply, considering meteorological conditions and any delays that are expected in flight, to include the following:
  - (a) **Taxi fuel** – which shall be the amount of fuel expected to be consumed before take-off;
  - (b) **Trip fuel** – which shall be the amount of fuel required to enable the aeroplane to fly from take-off, or the point of in-flight re-planning, until landing at the destination aerodrome taking into account the operating conditions in the data provided by the manufacturer;
  - (c) **Contingency fuel** – which shall be the amount of fuel required to compensate for unforeseen factors. It shall be five percent of the planned

trip fuel or of the fuel required from the point of in-flight re-planning based on the consumption rate used to plan the trip fuel, but in any case, shall not be lower than the amount required to fly for five minutes at holding speed at 450 m (1500 ft.) above the destination aerodrome in standard conditions;

- (d) **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 expecting 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 two destination alternate aerodromes are required, the amount of fuel, as calculated in (d)(i) above, required to enable the aeroplane to proceed to the destination alternate aerodrome which requires the greater amount of alternate fuel; or
  - (iii) 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 (1500 ft.) above destination aerodrome elevation in standard conditions; or
  - (iv) 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 percent 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-engine aeroplane, the amount of fuel required to fly for two hours at normal cruise consumption above the destination aerodrome, including final reserve fuel;
- (e) **Final reserve fuel** – which shall be the amount of fuel calculated using the estimated mass on arrival at the destination alternate aerodrome, or the destination aerodrome when no destination alternate aerodrome is required, or a pre-calculated value for each aeroplane type and variant in the fleet rounded up to an easily recalled figure:
- (i) For a reciprocating engine aeroplane, the amount of fuel required to fly for

- 45 minutes, under speed and altitude conditions specified by the Authority; or
- (ii) For a turbine-engined aeroplane, the amount of fuel required to fly for 30 minutes at holding speed at 450 m (1500 ft.) above aerodrome elevation in standard conditions;
- (f) **Additional fuel** – which shall be the supplementary amount of fuel required if the minimum fuel calculated in accordance with trip fuel, contingency fuel, destination alternate fuel and final reserve fuel above is not sufficient to:
- (i) Allow the aeroplane to descend as necessary and proceed to an alternate aerodrome in the event of engine failure or loss or pressurization, whichever requires the greater amount of fuel based on the assumption that such a failure occurs at the most critical point along the route;
    - (A) To fly for 15 minutes at holding speed at 450 m (1500 ft.) above the aerodrome elevation in standard conditions; and
    - (B) Make an approach and landing;
  - (ii) Allow an aeroplane engaged in EDTO to comply with the EDTO critical fuel scenario as established by the Authority;
  - (iii) Meet additional requirements not covered above.

*Note: Fuel planning for a failure that occurs at the most critical point along a route may place the aeroplane in a fuel emergency situation.*

- (g) **Discretionary fuel** – shall be the extra amount of fuel to be carried at the discretion of the PIC, or
- (h) Notwithstanding the provisions in (2)(a)–(f) above, the Authority may approve a variation to these requirements provided the operator can demonstrate an equivalent level of safety will be maintained through a safety risk assessment that includes at least the following:
- (i) Flight fuel calculations;
  - (ii) Capabilities of the operator to include:
    - (A) A data-driven method that includes a fuel consumption monitoring programme; and or
    - (B) The advanced use of alternate aerodromes; and
  - (iii) Specific mitigation measures.

**Note:** ICAO Doc 9976, *Flight Planning and Fuel Management Manual*, contains

*guidance on the specific safety risk assessment, fuel consumption monitoring programmes and the advanced use of alternate aerodromes.*

- (3) **[AOC] Helicopters.** No person may commence a flight under IFR unless there is enough fuel supply, considering meteorological conditions and any delays that are expected in flight, to—
- (a) When a destination alternate is required,
    - (i) Fly to and execute an approach, and a missed approach, at the heliport to which the flight is planned, and thereafter;
    - (ii) fly for 30 minutes at a holding speed at 450 m (1500 ft.) above the alternate under standard temperature conditions, and approach and land; and
    - (iii) have a reserve for contingencies specified by the operator and approved by the Authority.
  - (b) When a destination alternate is not required, to fly to the heliport to which the flight is planned and thereafter:
    - (i) fly for 30 minutes at a holding speed at 450 m (1500 ft.) above the alternate under standard temperature conditions, and approach and land; and
    - (ii) have a reserve for contingencies specified by the operator and approved by the Authority.
- (4) 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.-Guidance on procedures for in-flight fuel management including re-analysis, adjustment and or re-planning considerations when a flight begins to consume contingency fuel before take-off is contained in the Flight Planning and Fuel Management (FPFM) Manual (Doc 9976).*

#### **8.6.2.16 FLIGHT PLANNING DOCUMENT DISTRIBUTION AND RETENTION: COMMERCIAL AIR TRANSPORT**

- (1) For commercial air transport operations, the PIC shall prior to departure approve and sign the following flight preparation documents and where applicable these documents shall be signed by the flight operations officer or flight dispatcher and a copy filed with the operator or a designated agent, or, if these procedures are not possible it shall be left with the aerodrome or heliport authority or on record in a suitable place at the point of departure:
- (a) An operational flight plan, including NOTAMs and weather pertinent to the flight planning decisions regarding minimum fuel supply, en route performance, and destination and alternate aerodromes.

- (b) A load manifest, showing the distribution of the load, centre of gravity, take-off and landing mass and compliance with maximum operating mass limitations, and performance analysis.
  - (c) An applicable technical log page, showing acceptance of the aircraft.
- (2) No person may take-off an aircraft in commercial air transport unless all flight release documents, signed by the PIC, are retained and available at the point of departure.
  - (3) The PIC shall carry a copy of the documents specified in paragraph (1) on the aircraft to the destination aerodrome.
  - (4) Fuel and oil records shall be retained by the operator for a period of three (3) months to ascertain that trends for oil consumption are such that an aeroplane has sufficient oil to complete each flight.
  - (5) Completed flight preparation forms shall be kept by an operator for a period of three (3) months.

**Note:** *These documents are in addition to those specified in 8.2 for all aircraft operations.*

**Note:** *The Authority may approve a different retention location where all documents can be available for subsequent review.*

#### **8.6.2.17 AIRCRAFT LOADING, MASS AND BALANCE**

- (1) No person may operate an aircraft unless all loads carried are properly distributed and safely secured.
- (2) No person may operate an aircraft unless the calculations for the mass of the aircraft and centre of gravity location indicate that the flight can be conducted safely, taking into account the flight conditions expected.

*Note: When load masters, load planners or other qualified personnel are provided by the AOC holder in a commercial air transport operation, the PIC may delegate these responsibilities, but shall ascertain that proper loading procedures are followed.*

- (3) For commercial air transport operations, no PIC may commence a flight unless the PIC is satisfied that the loading and mass and balance calculations contained in the load manifest are accurate and comply with the aircraft limitations.

#### **8.6.2.18 MAXIMUM ALLOWABLE MASS TO BE CONSIDERED ON ALL LOAD MANIFESTS**

The PIC shall ensure that the maximum allowable mass for a flight does not exceed the maximum allowable take-off mass-

- (a) For the specific runway and conditions existing at the take-off time; and

- (b) Considering anticipated fuel and oil consumption that allows compliance with applicable en route performance, landing mass, and landing distance limitations for destination and alternate aerodromes or heliports.

#### **8.6.2.19 FLIGHT RELEASE REQUIRED: COMMERCIAL AIR TRANSPORT**

- (1) No person may start a flight under a flight following system without specific authority from the person authorised by the AOC holder to exercise operational control over the flight.
- (2) No person may commence a passenger-carrying flight in commercial air transport for which there is a published schedule, unless that person is licensed or approved in accordance with the relevant Ghana Civil Aviation Directives and authorised by the AOC holder to perform operational control functions to issue a flight release for that specific operation or series of operations.

#### **8.6.2.20 OPERATIONAL FLIGHT PLAN: COMMERCIAL AIR TRANSPORT**

- (1) No person may commence a flight unless the operational flight plan has been signed by the PIC.
- (2) A PIC may sign the operational flight plan only when the PIC and the person authorised by the operator to exercise operational control have determined that the flight can be safely completed.

*Note: The operational flight plan shall include the routing and fuel calculations, with respect to the meteorological and other factors expected, to complete the flight to the destination and all required alternates.*

- (3) The PIC signing the operational flight plan shall have access to the applicable flight planning information for fuel supply, alternate aerodromes, weather reports and forecasts and NOTAMs for the routing and aerodrome.
- (4) No person may continue a flight from an intermediate aerodrome without a new operational flight plan if the aircraft has been on the ground more than 6 hours.

#### **8.6.2.21 AIRCRAFT TRACKING: COMMERCIAL AIR TRANSPORT**

- (1) An Operator shall establish an aircraft tracking capability to track aeroplanes throughout its area of operations.

*Note.-Guidance on aircraft tracking capabilities is contained in the Aircraft Tracking Implementation Guidelines (Cir 347).*

- (2) The operator shall track the position of an aeroplane through automated reporting at least every 15 minutes for the portion(s) of the in-flight operation(s) under the following conditions:

- (a) the aeroplane has a maximum certificated take-off mass of over 27 000 kg and a seating capacity greater than 19; and
- (b) where an ATS unit obtains aeroplane position information at greater than 15 minute intervals.

*Note.— See Ghana Civil Aviation (ANS) Directives and Annex 11, Chapter 2, for coordination between the operator and air traffic services providers regarding position report messages.*

- (3) The operator shall track the position of an aeroplane through automated reporting at least every 15 minutes for the portion(s) of the in-flight operation(s) that is planned in an oceanic area(s) under the following conditions:
  - (a) the aeroplane has a maximum certificated take-off mass of over 45 500 kg and a seating capacity greater than 19; and
  - (b) where an ATS unit obtains aeroplane position information at greater than 15 minute intervals.

*Note 1: Oceanic area, for the purpose of aircraft tracking, is the airspace which overlies waters outside the territory of a State.*

*Note 2: See Ghana Civil Aviation (ANS) Directives and Annex 11, Chapter 2, for coordination between the operator and air traffic services providers regarding position report messages.*

- (4) The Authority, may approve variations to subpart 8.6.2.21 (2) and (3) if the operator can demonstrate how risks to the operation resulting from such variations can be managed and shall include at least the following:
  - (a) capability of the operator's operational control systems and processes, including those for contacting ATS units;
  - (b) overall capability of the aeroplane and its systems;
  - (c) available means to determine the position of, and communicate with, the aeroplane;
  - (d) frequency and duration of gaps in automated reporting;
  - (e) human factors consequences resulting from changes to flight crew procedures; and
  - (f) specific mitigation measures and contingency procedures.

*Note—Guidance on development, implementation and approval of the risk assessment process which allows for variations to the need for automatic reporting and the required interval, including variation examples, is contained in the Aircraft Tracking Implementation Guidelines (Cir 347).*

- (5) The operator shall establish procedures, approved by the Authority, for the retention of aircraft tracking data to assist Search and Rescue in determining the last known position of the aircraft.

## **8.7 AIRCRAFT OPERATING AND PERFORMANCE LIMITATIONS**

### **8.7.1 ALL AIRCRAFT**

#### **8.7.1.1 APPLICABILITY**

This Section prescribes the operating and performance limitations for all civil aircraft.

#### **8.7.1.2 GENERAL**

- (1) The level of performance defined by the appropriate parts of the comprehensive and detailed national code of performance referred to in 8.7.1.2(1) (for the aircraft designated in 8.7.1.2(2)), shall be at least substantially equivalent to the overall level embodied in the requirements of this sub-Part.
- (2) No person may operate an aircraft that-
  - (a) Exceeds its designed performance limitations for any operation, as established by the State of Registry; or
  - (b) Exceeds operating limitations contained in the Aircraft Flight Manual, or its equivalent;
  - (c) Exceeds the terms of its certificate of airworthiness;
  - (d) Exceeds the mass limitations, if applicable, imposed by the terms of its noise certification standards, as contained in the applicable part of ICAO Annex 16, Volume I, unless otherwise approved by the Authority.
- (3) The Authority, when also the State of Registry of an aircraft 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 sub-Part.

#### **8.7.1.3 AIRCRAFT PERFORMANCE CALCULATIONS**

- (1) Each operator shall ensure that the performance data contained in the AFM, RFM, or other authorised sources used to determine compliance with the appropriate requirements of Subpart 8.7.



- (2) When applying performance data, each person performing calculations shall account for all factors that significantly affect the performance of the aircraft configuration, including, but not limited to: mass of the aeroplane, the operating procedures, the pressure-altitude appropriate to the elevation of the aerodrome, the ambient temperature, the wind, the runway slope, and surface conditions of the runway i.e., environmental conditions, snow, slush, water, ice, for landplanes, water surface condition for seaplanes, and the operation of any system or systems that may have an adverse effect on performance.
- (3) The factors described in subpart (2) of the aircraft performance calculations shall be taken into account directly as operations parameters or indirectly by means of allowances or margins, which may be provided in the design performance limits or in the terms of the AOC in accordance with which the aeroplane is being operated.

#### **8.7.1.4 GENERAL MASS AND OBSTRUCTION CLEARANCE LIMITATIONS**

- (1) No person may take-off an aircraft without ensuring that the maximum allowable mass for a flight does not exceed the maximum allowable take-off or landing mass, or any applicable en route performance or landing distance limitations considering the-
  - (a) Condition of the take-off and landing areas to be used;
  - (b) Gradient of runway to be used (landplanes only);
  - (c) Pressure altitude;
  - (d) Ambient temperature;
  - (e) Current and forecast winds; and
  - (f) Any known condition (e.g. atmospheric and aircraft configuration) which may adversely affect aircraft performance, or compliance with noise certification standards if required.
- (2) No person may take-off an aircraft at a mass that, assuming normal engine operation, cannot safely clear all obstacles during all phases of flight, including all points along the intended en route path or any planned diversions.

### **8.7.2 AIRCRAFT USED IN COMMERCIAL AIR TRANSPORT**

#### **8.7.2.1 APPLICABILITY**

This Section prescribes aircraft performance and operating limitations for aircraft used in commercial air transport operations, except those aircraft holding a special authority or waiver by the Authority which exempt them from specific operating and performance limitations.

**8.7.2.2 GENERAL**

- (1) Each person operating an aircraft engaged in commercial air transport shall comply with the provisions of Subpart 8.7.2.
- (2) Each person operating a rotorcraft identified as Class 1, 2, or 3 in international commercial air transport shall comply with the code of performance in IS: 8.7.2.2(b).
- (3) The Authority may grant exemptions in accordance with Part 1 of these Directives, from the requirements of Subpart 8.7.2 if special circumstances make a literal observance of a requirement unnecessary for safety.
- (4) Where full compliance with the requirements of Subpart 8.7.2 cannot be shown due to specific design characteristics (e.g., seaplanes, airships, or supersonic aircraft), the operator shall apply approved performance standards that ensure a level of safety not less restrictive than those of relevant requirements of this Subpart.
- (5) No person may operate a multiengine aircraft used for revenue passengers carrying operations that is unable to comply with any of the performance limitations of Subparts 8.7.2.4 through 8.7.2.10 unless that aircraft is continually operated—
  - (a) In daylight;
  - (b) In VFR, excluding over the top operations; and
  - (c) At a mass that will allow it to climb, with the critical engine inoperative, at least 15 m (50 ft.) a minute when operating at the MEAs of the intended route or any planned diversion, or at 1500 m (5,000 ft.) MSL, whichever is higher.
- (6) Multi-engine aircraft that are unable to comply with paragraph (5) (c) are, for the purpose of this Subpart, considered to be a single engine aircraft and shall comply with the requirements of 8.7.2.3(1).
- (7) Helicopters shall be operated in accordance with a code of performance established by the Authority, in compliance with applicable provisions of this Part.

*Note 1: The code of performance reflects, for the conduct of operations, both the various phases of flight and the operational environment. The Helicopter Code of Performance Development Manual (Doc 10110) provides guidance to assist States in establishing a code of performance.*
- (8) In conditions where the safe continuation of flight is not ensured in the event of a critical engine failure, helicopter operations shall be conducted in conditions of weather and light, and over such routes and diversions, that permit a safe forced landing to be executed.

- (9) Notwithstanding the provisions of GCADs 8.7.2.2(8), the Authority may, based on the result of a risk assessment, allow for variations without a safe forced landing to be included in the Code of Performance established in accordance with the provisions of GCADs 8.7.2.2(7). The risk assessment shall take into consideration at least the following:
- (a) the type and circumstances of the operation;
  - (b) the area/terrain over which the operation is being conducted;
  - (c) the probability of, and length of exposure to, a critical engine failure and the tolerability of such an event;
  - (d) the procedures and systems for monitoring and maintaining the reliability of the engine(s);
  - (e) the training and operational procedures to mitigate the consequences of the critical engine failure; and
  - (f) helicopter equipment.

*Note.— Guidance on conduct of the risk assessment to allow for variations to the need for a safe forced landing, including mitigation strategies to reduce the risk, is contained in Doc 10110.*

- (10) Where the Authority permits IMC operations in performance Class 3, such operations shall be conducted in accordance with the provisions of GCADs 8.7.2.9.
- (11) The Authority shall ensure that the level of performance specified in 8.7.1.2 is met as far as practicable, for helicopters for which Part IV of Annex 8 is not applicable because of the exemption provided for in Article 41 of the Convention.

*Note: Guidance on the level of performance intended by the provisions of this chapter is contained in Doc 10110.*

### **8.7.2.3 SINGLE-ENGINE AND MULTI-ENGINE AEROPLANE OPERATIONS**

- (1) No person shall operate a single-engine aeroplane in commercial passenger-carrying operations unless that aeroplane is continually operated in daylight, VFR, and over such routes and diversions therefrom that permit a safe forced landing to be executed in the event of an engine failure.
- (2) Notwithstanding paragraph (1) of this subsection, the Authority may approve single-engine operations in propeller-driven, turbine-powered aeroplanes under IFR, at night, or under IMC for aeroplanes with a maximum certificated take-off mass of 5 700 kg (12 566 lb) or less and a maximum approved passenger seating configuration of nine or less, provided it meets the equipment requirements of Part 7 of these Directives.

- (3) The Authority may approve single-engine cargo or mail operations by a single pilot in propeller-driven, turbine-powered aeroplanes under IFR, at night, or under IMC for aeroplanes with a maximum certificated take-off mass of 5 700 kg (12 566 lb) if the aeroplane is type certificated, provided it meets the equipment requirements of Part 7 of these Directives and any other conditions that the Authority may deem necessary.
- (4) No person shall operate a single-engine turbine-powered aeroplane either at night, in IMC or both unless
  - (a) the aeroplane has an engine trend monitoring system, and where the individual certificate of airworthiness for the aeroplane is first issued on or after 01 January 2005, it has an automatic trend monitoring system;
  - (b) the airworthiness certification of the aeroplane is appropriate and acceptable to the Authority; and
  - (c) the overall safety of the operation is consistent with commercial air transportation operations as provided by:
    - (i) The reliability of the turbine engine;
    - (ii) The operator's maintenance procedures, operating practices, and flight dispatch procedures;
    - (iii) Crew training programmes; and
    - (iv) Equipment and additional requirements provided in accordance with paragraph (5) of this subsection.
- (5) IS 8.7.2.3 prescribes additional airworthiness and operational requirements applicable to the operation of single-engine, turbine-powered aeroplanes either at night, in IMC or both with respect to:
  - (a) Turbine engine reliability;
  - (b) Systems and equipment;
  - (c) MEL;
  - (d) Aircraft Flight Manual information;
  - (e) Event reporting;
  - (f) Operator planning;
  - (g) Flight crew experience, training, and checking;
  - (h) Route limitations over water; and

- (i) Operator certification or validation.
- (6) The Authority shall not grant an exemption for single – pilot commercial passenger operations.

#### **8.7.2.4 AIRCRAFT PERFORMANCE CALCULATIONS**

- (1) No person may take-off an aircraft used in commercial air transport without ensuring that the applicable operating and performance limitations required for this Section can be accurately computed based on the AFM, RFM, or other data source approved by the Authority.
- (2) All single-engine turbine-powered aeroplanes operated at night and or in IMC shall have an engine trend monitoring system, and those aeroplanes for which the individual certificates of airworthiness has been issued shall have an automatic trend monitoring system.
- (3) When calculating the performance and limitation requirements of 8.7.2.4 to 8.7.2.8, each person performing the calculation shall, for all engines operating and for inoperative engines, accurately account for-
  - (a) Determining the length of the runway available and the pilot shall take into account, the loss, if any, of runway length due to alignment of the aeroplane prior to take-off.
  - (b) Obstacle data provided to enable the operator to develop procedures to comply with take-off, initial climb, approach and landing phases in the event of critical power unit failure (see 8.7.2.4)
- (4) When calculating the performance and limitation requirements of 8.7.2.4 to 8.7.2.8, each person performing the calculation shall, for all engines operating and for inoperative engines, accurately account for charting accuracy when accessing compliance with take-off in the event of a critical power unit failure (see 8.7.2.4).
- (5) In approving operations by single-engine turbine-powered aeroplanes at night and or in IMC the Authority shall ensure that the airworthiness certification of the aeroplane is appropriate and that the overall level of safety intended by the provisions of Part 8 and Part 5 of these Directives is provided by:
  - (a) The reliability of the turbine engine;
  - (b) The operators maintenance procedures, operating practices, flight dispatch procedures and crew training programs; and
  - (c) Equipment and other requirements provided in accordance with Part 7 of these Flight Standards Directives.

- (6) Each person calculating performance and operating limitations for aircraft used in commercial air transport shall ensure that performance data used to determine compliance with this Section can, during any phase of flight, accurately account for-
- (a) Any reasonably expected adverse operating conditions that may affect aircraft performance;
  - (b) One engine failure for aircraft having two engines, if applicable; and
  - (c) Two engine failure for aircraft having three or more engines, if applicable.
- (7) When calculating the performance and limitation requirements of subsections 8.7.2.4 to 8.7.2.8, each person performing the calculation shall, for all engines operating and for inoperative engines, accurately account for-
- (a) ***In all phases of flight-***
    - (i) The effect of fuel and oil consumption on aircraft mass;
    - (ii) The effect of fuel consumption on fuel reserves resulting from changes in flight path, winds and aircraft configuration;
    - (iii) The effect of fuel jettisoning on aircraft mass and fuel reserves, if applicable and approved;
    - (iv) the effect of any ice protection system, if applicable and weather conditions require its use;
    - (v) ambient temperatures and winds along intended route and any planned diversion; and
    - (vi) Flight paths and minimum altitudes required to remain clear of obstacles.
  - (b) ***During take-off and landing-***
    - (i) The condition of the take-off runway of area to be used, including any contaminants (e.g., water, slush, snow, ice);
    - (ii) The gradient of runway to be used;
    - (iii) The runway length including clearways and stop ways, if applicable;
    - (iv) Pressure altitudes at take-off and landing sites;
    - (v) Current ambient temperatures and winds at take-off;
    - (vi) Forecast ambient temperatures and winds at each destination and planned alternate landing site;

- (vii) The ground handling characteristics (e.g. braking action) of the type of aircraft; and
- (viii) Landing aids and terrain that may affect the take-off path, landing path, and landing roll.

**Note:** Where conditions are different from those on which the performance is based, compliance may be determined by interpolation or by computing the effects of changes in the specific variables, if the results of the interpolation or computations are substantially as accurate as the results of direct tests.

**Note:** To allow for wind effect, take-off data based on still air may be corrected by taking into account not more than 50 percent of any reported headwind component and not less than 150 percent of any reported tailwind component and landing data based on.

#### 8.7.2.5 TAKE OFF LIMITATIONS

- (1) **Aeroplanes.** No person may take-off an aeroplane unless the following requirements are met when determining the maximum permitted take-off mass:
  - (a) The take-off run shall not be greater than the length of the runway.
  - (b) *For turbine engine powered aeroplanes-*
    - (i) The take-off distance shall not exceed the length of the runway plus the length of any clearway, except that the length of any clearway included in the calculation shall not be greater than  $\frac{1}{2}$  the length of the runway; and
    - (ii) The accelerate-stop distance shall not exceed the length of the runway, plus the length of any stop way, at any time during take-off until reaching  $V_1$ .
  - (c) *For reciprocating engine powered aeroplanes-*
    - (i) The accelerate-stop distance shall not exceed the length of the runway at any time during take-off until reaching  $V_1$ .
  - (d) If the critical engine fails at any time after the aeroplane reaches  $V_1$ , to continue the take-off flight path and clear all obstacles either-
    - i. By a height of at least 9m (35 ft.) vertically for turbine engine powered aeroplanes or 15m (50 ft.) for reciprocating engine powered aeroplanes; and
    - ii. By at least 60m (200 ft.) horizontally within the aerodrome boundaries and by at least 90 meters (300 feet) horizontally after passing the boundaries, without banking more than 15

degrees at any point on the take-off flight path.

(2) **Helicopters.** No person may take-off a helicopter used in commercial air transport that, in the event of a critical engine failure, cannot-

(a) **For Class 1 helicopters-**

- (i) At or before the take-off decision point, discontinue the take-off and stop within the rejected take-off area available; or
- (ii) After the take-off decision point, continue the take-off and then climb, clearing all obstacles along the flight path by an adequate margin, until a suitable landing site is found.

(b) **For Class 2 helicopters-**

- (i) Before reaching a defined point after take-off, safely execute a forced landing within the rejected take-off area available; or
- (ii) At any point after reaching a defined point after take-off, continue the take-off and then climb, clearing all obstacles along the flight path by an adequate margin, until a suitable landing site is found.

(c) **Class 3 Helicopters.**

- (i) Clear the obstacles along its flight path by an adequate margin; or
- (ii) Maintain minimum flight altitude; or
- (iii) At engine failure permit a safe, forced landing.

(3) The Authority shall ensure that certificated helicopters, in accordance with 5.2 of these Flight Standards Directives, meet the level of performance specified in Part 8 as far as practicable.

(4) The Authority shall only permit Performance Class 1 Helicopters to operate from elevated heliports in congested areas.

#### **8.7.2.6 EN ROUTE LIMITATIONS: ALL ENGINES OPERATING**

(1) No person may take off a piston - engined aeroplane used in commercial air transport at a mass that does not allow a rate of climb of a least  $6.9 V_{SO}$  (that is, the number of feet per minute obtained by multiplying the aircraft minimum steady flight speed by 6.9) with all engine operating, at an altitude of at least 300m (1,000 ft.) above all terrain and obstructions within ten miles of each side of the intended track.



- (2) **Class 3 Helicopters:** The helicopter shall be able, with all power- units operating, to continue along its intended route or planned diversions without flying at any point below the appropriate minimum flight altitude. At any point of the flight path, failure of a power-unit will cause the helicopter to force land; therefore the conditions stated in 8.7.2.4(3) shall apply.

#### 8.7.2.7 EN ROUTE LIMITATIONS: ONE ENGINE INOPERATIVE

- (1) **Aeroplane.** No person may take off an aeroplane used in commercial air transport having two engines unless that aeroplane can, in the event of a power failure at the most critical point en route, continue the flight to a suitable aerodrome where a landing can be made while allowing-

(a) **For piston - engine aeroplanes-**

- (i) At least a rate of climb of  $0.079 - (0.106/\text{number of engines installed}) V_{so}^2$  (when  $V_{so}$  is expressed in knots) at an altitude of 300m (1,000 ft.) above all terrain and obstructions within 9.3km (5nm), on each side of the intended track; and
- (ii) A positive slope at 1,500ft above the aerodrome where the aeroplane is assumed to land.

(b) **For turbine engine powered transport category aeroplanes-**

- (i) A positive slope at an altitude of at least 300m (1,000 ft.) above all terrain and obstructions within 9.3km (5sm), on each side of the intended track;
- (ii) A net flight path from cruising altitude to the intended landing aerodrome that allows at least 600m (2000 ft.) clearance above all terrain and obstructions within 9.3km (5sm) on each side of the intended track; and
- (iii) A positive slope at an altitude of at least 450m (1,500ft) above the aerodrome where the aeroplane is assumed to land.

**Note:** The climb rate specified in paragraph (1) (a) (i) may be amended to  $0.026 V_{so}^2$  for large transport category aircraft issued a type certificate prior to 1953.

**Note:** The 9.3km (5sm) clearance margin stated in paragraph (a) shall be increased to 18.5km (10 sm) if navigational accuracy does not meet the 95% containment level.

- (2) **Helicopters.** No person shall take-off a helicopter used in commercial air transport having two engines unless that helicopter can, in the event of the critical engine failing and at any point in the enroute phase, continue the flight to the destination or alternate landing site without flying below the minimum flight altitude at any point and clearing all obstacles in the approach path by a safe margin.

**8.7.2.8 EN ROUTE LIMITATION: TWO ENGINES INOPERATIVE**

- (1) **Aeroplane.** No person may take-off an aeroplane used in commercial air transport having three or more engines at such a mass where there is no suitable landing aerodrome within 90 minutes at any point along the intended route (with all engine operating at cruising power), unless that aircraft, can, in the event of simultaneous power, failure of two critical engines at the most critical point along that route, continue to a suitable landing aerodrome while allowing-

**(a) For turbine engine powered aeroplanes-**

- (i) A net flight path (considering the ambient temperatures anticipated along the track) clearing vertically by at least 2,000 feet all terrain and obstructions within five statute miles (4.34 nautical miles) on each side of the intended track;
- (ii) A positive slope at 1,500 ft. (450 metres) above the aerodrome of intended landing; and
- (iii) Enough fuel to continue to the aerodrome of intended landing, to arrive at an altitude of at least 1,500 ft. (450 metres) directly over the aerodrome, and thereafter to fly for 15 minutes at cruise power.

**Note:** The consumption of fuel and oil after the engine failure is the same as the consumption that is allowed for in the net flight path data in the AFM.

**(b) For reciprocating engine powered aeroplanes-**

- (i) A rate climb at  $0.013 V_{so}^2$  feet per minute (that is, the number of feet per minute is obtained by multiplying the number of knots squared by 0.013) at an altitude of 1000 feet above the highest ground or obstruction within 10 miles on each side of the intended track, or at an altitude of 5,000 feet, whichever is higher; and
- (ii) Enough fuel to continue to the aerodrome of intended landing and to arrive at an altitude of at least 300m (1,000 ft.) directly over that aerodrome.

**Note:** When the two engines of the reciprocating aeroplane are predicted to fail at an altitude above the prescribed minimum altitude, compliance with the prescribed rate of climb need not be shown during the descent from the cruising altitude to the prescribed minimum altitude, if those requirements can be met once the prescribed minimum altitude is reached, and assuming descent to be along a net flight path and the rate of descent to be  $0.013 V_{so}^2$  greater than the rate in the approved performance data.

**Note:** If fuel jettisoning is authorised (or planned), the aeroplane's mass at the point where the two engines fail is considered to be not less than that which would include enough fuel to proceed to an aerodrome and to arrive at an altitude of at least 300m (1,000 ft.) directly over that aerodrome.

- (2) **Helicopters.** No person shall take-off a Class 1 or Class 2 helicopter used in commercial air transport having three or more engines unless that helicopter can,

in the event of two critical engines failing simultaneously at any point in the en route phase, continue the flight to a suitable landing site.

#### 8.7.2.9 APPROACH AND LANDING LIMITATIONS

- (1) **Aeroplane.** No person may take off an aeroplane used in commercial operations unless its mass on arrival at either the intended destination aerodrome or any planned alternate aerodrome would allow a full stop landing from a point 50 ft. (15 metres) above the intersection of the obstruction clearance plane and the runway, and within-
  - (a) For turbine engine powered aeroplanes, 60 percent of the effective length of each runway.
  - (b) For reciprocating engine powered aeroplanes, 70 percent of the effective length of each runway.
- (2) For the purpose of determining the allowable landing mass at the destination aerodrome, each person determining the landing limits shall ensure that-
  - (a) The aeroplane is landed on the most favourable runway and in the most favourable direction, in still air; or
  - (b) The aeroplane is landed on the most suitable runway considering the probable wind velocity and direction, runway conditions, the ground handling characteristics of the aeroplane, and considering other conditions such as landing aids and terrain.

*Note: If the runway at the landing destination is reported or forecast to be wet or slippery, the landing distance available shall be at least 115 percent of the required landing distance unless, based on a showing of actual operating landing techniques on wet or slippery runways, a shorter landing distance (but not less than that required by paragraph (1)) has been approved for a specific type and model aeroplane and this information is included in the AFM.*
- (3) A turbine powered transport category aeroplane that would be prohibited from taking off because it could not meet the requirements of paragraph (1) (a), may take off if an alternate aerodrome is specified that meets all the requirements of paragraph (1).
- (4) **Helicopters.** No person may take off a helicopter used in commercial air transport unless, with all engines operating on arrival at the intended destination landing site or any planned alternate landing, it can clear all obstacles on the approach path and can land and stop within the landing distance available.
- (5) **Helicopters.** No person may take off a helicopter used in commercial air transport unless, in the event of any engine becoming inoperative in the approach and landing phase on arrival at the intended destination landing site or any planned alternate landing site, can-

- (a) **For Class 1 helicopters-**
- (i) Before the landing decision point, clear all obstacles on the approach path and be able to land and stop within the landing distance available or to perform a bailed landing and clear all obstacles in the flight path by an adequate margin; or
  - (ii) After the landing decision point, land and stop within the landing distance available.
- (b) **For Class 2 and Class 3 helicopters-**
- (i) Before reaching a defined point before landing, safely execute a forced landing within the landing distance available.
  - (ii) The helicopter shall be able to land and stop within the landing distance available or to perform a bailed landing and clear all obstacles in the flight path as specified in GCADs 8.7.2.4(2)(b).

#### **8.7.2.10 ADDITIONAL REQUIREMENTS FOR CLASS 3 HELICOPTERS OPERATING IN IMC**

- (1) Except for special VFR flights, no person shall operate a performance Class 3 helicopter in IMC unless:
- (a) The surface environment over which the operation is to be performed is acceptable to the Authority;
  - (b) The helicopter is certified for flight under IFR;
  - (c) The operation is approved by the Authority taking into consideration the overall level of safety provided by:
    - (i) The reliability of the engines;
    - (ii) The operator's maintenance procedures, operating practices and crew training programmes; and equipment including the operator's vibration health monitoring practices for the tail-rotor drive system.
- (2) Except for special VFR flights, no person shall operate a performance Class 3 helicopter in IMC unless the operator has an engine trend monitoring system and uses the instruments, systems and operational or maintenance procedures to monitor the engines that are recommended by the helicopter manufacturer.

*Note: See ICAO Annex 6, Part III, Chapter 3 for additional guidance on helicopter performance operating limitations*

**8.7.2.11 TIME CAPABILITY OF CARGO COMPARTMENT FIRE SUPPRESSION SYSTEM**

All flights shall be planned so that the diversion time to an aerodrome where a safe landing could be made does not exceed the cargo compartment fire suppression time capability of the aeroplane, when one is identified in the aeroplane documentation, reduced by an operational safety margin specified by the Authority

**8.8 FLIGHT RULES****8.8.1 ALL OPERATIONS****8.8.1.1 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.

**8.8.1.2 OPERATION OF AIRCRAFT ON THE GROUND**

- (1) No person may taxi an aircraft on the movement area of an aerodrome unless the person at the controls-
  - (a) Has been authorised by the owner, the lessee, or a designated agent;
  - (b) Is fully competent to taxi the aircraft;
  - (c) Is qualified to use the radio if radio communications are required; and
  - (d) 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 aircraft movement at the aerodrome.
- (2) No person shall cause a helicopter rotor to be turned under power unless there is a qualified pilot at the controls.
- (3) The operator shall provide appropriately specific training and procedures to be followed for all personnel, other than qualified pilots, who are likely to carry out the turning of a rotor under power for purposes other than flight.
- (4) No unqualified person may tow an aircraft.

**8.8.1.3 TAKE-OFF CONDITION**

Before commencing take-off, a PIC shall ensure that-

- (a) According to the available information, the weather at the aerodrome and the condition of the runway intended to be used will allow for a safe take-off and departure; and
- (b) The RVR or visibility in the take-off direction of the aircraft is equal to or better than the applicable minimum.

**8.8.1.4 FLIGHT INTO KNOWN OR EXPECTED ICING**

- (1) No person may take-off an aircraft or continue to operate an aircraft en route when the icing conditions are expected or encountered, without ensuring that the aircraft is certified for icing operations and has been inspected for icing and, if necessary has been given appropriate de-icing or anti-icing treatment.
- (2) No person may take-off an aircraft when frost, ice or snow is adhering to the wings, control surfaces, propellers, engine inlets or other critical surfaces of the aircraft which might adversely affect the performance or controllability of the aircraft.
- (3) For commercial air transport operations, no person may take-off an aircraft when conditions are such that frost, ice or snow may reasonably be expected to adhere to the aircraft, unless the procedures approved for the AOC holder by the Authority are followed to ensure ground de-icing and anti-icing is accomplished.

**8.8.1.5 ALTIMETER SETTINGS**

- (1) Each person operating an aircraft, except a balloon or glider, shall maintain the cruising altitude or flight level by reference to an altimeter setting.
- (2) Below transition altitude to-
  - (a) The current reported altimeter setting of a station along the route and within 100 nautical miles of the aircraft;
  - (b) The current reported altimeter setting of a nearby station, if there is not a station along the route; or
  - (c) In the case of an aircraft not equipped with a radio, the elevation of the departure aerodrome or an appropriate altimeter setting available before departure; or
  - (d) At or above transition level to 29.92” Hg or 1013.2 hPa.

**8.8.1.6 MINIMUM SAFE ALTITUDES: GENERAL**

Except when necessary for take-off or landing, no person may operate an aircraft below the following altitudes:

- (a) **Anywhere.** An altitude allowing, if a power unit fails, continuation of flight or an emergency landing without undue hazard to persons or property on the surface.
- (b) **Over congested areas.** Over any congested area of a city, town, or settlement, or over any open-air assembly of persons, an altitude of 300m (1,000 feet) above the highest obstacle within a horizontal radius of 600m (2,000 feet) of the aircraft.
- (c) **Over other than congested areas.** An altitude of 150m (500 feet) above the surface, except over open water or sparsely populated areas where the aircraft may not be operated closer than 150m (500 feet) to any person, vessel, vehicle, or structure.
- (d) **Helicopters.** Pilots of helicopters are not subject to the proximity restrictions provided they operate in a manner that is not hazardous to person and property on the surface. The PIC of a helicopter shall comply with any routes or altitudes for the area that are prescribed for helicopters by the Authority.

**8.8.1.7 MINIMUM SAFE VFR ALTITUDES**

Except when necessary for take-off or landing, no person shall operate an aircraft below the following altitudes:

- (a) No person shall operate an aeroplane during the day, under VFR, at an altitude less than 300 m (1000 ft.) above the surface or within 300 m (1000 ft.) of any mountain, hill, or other obstruction to flight.
- (b) No person shall operate an aeroplane at night, under VFR, at an altitude less than 300 m (1000 ft.) above the highest obstacle within a horizontal distance of 8 km (5 statute miles) from the centre of the intended course, or, in designated mountainous areas, less than 600 m (2000 ft.) above the highest obstacle within a horizontal distance of 8 km (5 statute miles) from the centre of the intended course.

**8.8.1.8 AERODROME OPERATING MINIMA**

- (1) No person shall operate to or from an aerodrome without establishing and using an aerodrome operating not lower than those which may be established for that aerodrome by the State in which it is located, unless that State specifically approves that operation in accordance with the provisions of Implementing Standard: IS: 8.8.1.8.

- (2) The Authority shall authorise operational credit(s) for operations with advanced aircraft. Where the operational credit relates to low visibility operations, the Authority shall issue a specific approval. Such authorisations shall not affect the classification of the instrument approach procedure. The Authority shall require the provisions in IS 8.8.1.8 (2) in establishing the aerodrome operating minima.

*Note 1: Operational credit includes: for the purposes of an approach ban, or dispatch considerations a minimum below the aerodrome operating minima; reducing or satisfying the visibility requirements; or requiring fewer ground facilities as compensated for by airborne capabilities.*

*Note 2: Guidance on operational credit and how to express the operational credit in the specific approvals template is contained in the Manual of All-Weather Operations (Doc 9365).*

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

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

- (3) The Authority shall issue a specific approval for instrument approach operations in low visibility which shall only be conducted when RVR information is provided.

*Note: Guidance on low visibility operations is contained in the Manual of All-Weather Operations (Doc 9365).*

- (4) 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:

- (a) **Type A:** a minimum descent height or decision height at or above 75 m (250 ft.); and
- (b) **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.) 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; and
- (iii) **Category III (CAT III):** a decision height lower than 30 m (100 ft.) or no decision height and a runway visual range less than 300 m or no runway visual range limitations.
- (c) 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.

- (d) 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.
- (e) The Operator shall establish operational procedures designed to ensure that an aeroplane being used to conduct 3D instrument approach operations crosses the threshold by a safe margin, with the aeroplane in the landing configuration and attitude.

*Note 1: Where DH and 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 III but with an RVR in the range of CAT II would be considered a CAT II 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 I operation). This does not apply if the RVR and/or DH has been approved as operational credits.*

*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.*

*Note 3: Guidance on approach classification as it relates to instrument approach operations, procedures, runways and navigation systems is contained in ICAO Doc 9365, All Weather Operations Manual.*

*Note 4: For guidance on applying a continuous descent final approach (CDFA) flight technique on non-precision approach procedures (2D instrument approach operations Type A) refer to ICAO Doc 8168, PANS-OPS, Volume I, Section 4, and Chapter 1. CDFA with manual calculation of the required rate of descent (see PANS-OPS (Doc 8168), Volume I, Part I, Section 4, Chapter 1, Sub-Sections 1.7 and 1.8) are considered 2D instrument approach operations. CDFA with advisory VNAV guidance calculated by on-board equipment (see PANS-OPS (Doc 8168), Volume I, Part I, Section 4, Chapter 1, Sub-Section 1.8, paragraph 1.8.1) are considered 3D instrument approach operations.*

- (5) For take-off in low visibility, the Authority shall issue a specific approval for the minimum take-off RVR.

*Note 1: In general, visibility for take-off is defined in terms of RVR. An equivalent horizontal visibility may also be used.*

*Note 2: For instrument approach operations, aerodrome operating minima below 800 m visibility should not be authorized unless RVR information is provided.*

- (6) In granting a specific approval for the operational credit, the Authority shall ensure that:
  - (a) the aeroplane meets the appropriate airworthiness certification requirements;

- (b) the information necessary to support effective crew tasks for the operation is appropriately available to both pilots where the number of flight crew members specified in the operations manual is more than one;
- (c) the operator or owner has carried out a safety risk assessment of the operations supported by the equipment;
- (d) the operator or owner has established and documented the procedures for normal and abnormal procedures and MEL;
- (e) the operator or owner has established a training programme for the flight crew members and relevant personnel involved in the flight preparation; and
- (f) the operator or owner has established a system for data collection, evaluation and trend monitoring for operations with operational credit in low visibility operations.

*Note 1.— Guidance on safety risk assessments is contained in the Safety Management Manual (SMM) (Doc 9859).*

*Note 2.— Guidance on operational approvals is contained in the Manual of All Weather Operations (Doc 9365).*

- (g) For operations with operational credit with minima above those related to low visibility operations, the State of Registry shall establish criteria for the safe operation of the aeroplane.

*Note 1.— Guidance on operational credit with minimum above those related to low visibility operations is contained in the Manual of All-Weather Operations (Doc 9365).*

- (7) The Authority shall authorise operational credit(s) for operations with advanced aircraft. Where the operational credit relates to low visibility operations, the Authority shall issue a specific approval. Such authorizations shall not affect the classification of the instrument approach procedure.

*Note 1.— Operational credit includes:*

*a) for the purposes of an approach ban or dispatch considerations, a minimum below the heliport or landing location operating minima;*

*Note 2.— Guidance on operational credit and how to express the operational credit in the operations specifications is contained in the Manual of All-Weather Operations (Doc 9365).*

#### **8.8.1.9 CATEGORY II AND III OPERATIONS: GENERAL OPERATING RULES**

- (1) No person may operate a civil aircraft in a Category II or III operation unless-
  - (a) The PIC and CP of the aircraft hold the appropriate authorisations and ratings prescribed in Part 2 of these Flight Standards Directives;
  - (b) Each flight crew member has adequate knowledge of, and familiarity with, the aircraft and the procedures to be used; and

- (c) The instrument panel in front of the pilot who is controlling the aircraft has appropriate instrumentation for the type of flight control guidance system that is being used and RVR information is available for the aerodrome.
- (2) Unless otherwise authorized by the Authority, no person may operate a civil aircraft in a Category II or Category III operation unless each ground component required for that operation and the related airborne equipment is installed and operating.
- (3) When the approach procedure being used provides for and requires the use of a DH, the authorised DH is the highest of the following:
- (a) The DH prescribed by the approach procedure.
  - (b) The DH prescribed for the PIC.
  - (c) The DH for which the aircraft is equipped.
- (4) Unless otherwise authorised by the Authority, no pilot operating an aircraft in a Category II or Category III approach that provides and requires use of a DH may continue the approach below the authorised decision height unless the following conditions are met:
- (a) The aircraft is in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal manoeuvres, and where that descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing.
  - (b) At least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:
    - (i) The approach light system, except that the pilot may not descend below 100 feet (30 m) above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.
    - (ii) The threshold.
    - (iii) The threshold markings.
    - (iv) The threshold lights.
    - (v) The touchdown zone or touchdown zone markings.
    - (vi) The touchdown zone lights.
- (5) Unless otherwise authorised by the Authority, each pilot operating an aircraft shall immediately execute an appropriate missed approach whenever, prior to touchdown, the requirements of paragraph (4) of this section are not met.

- (6) No person operating an aircraft using a Category III approach without DH may land that aircraft except in accordance with the provisions of the letter of authorisation issued by the Authority.
- (7) No person may conduct Category II or III instrument approaches and landing operations below 800 m (2600 ft.) visibility unless RVR information is provided.
- (8) Paragraphs (1) through (7) of this section shall not be applicable to operations conducted by AOC holders issued a certificate under Part 9 of these Directives.
- (9) No person may operate a civil aircraft in a Category II or Category III operation conducted by an AOC holder unless the operation is conducted in accordance with that AOC holder's operations specifications.

#### **8.8.1.10 CATEGORY II AND CATEGORY III MANUAL**

- (1) Except as provided in paragraph (3) of this section, no person may operate a civil aircraft in a Category II or a Category III operation unless-
  - (a) There is available in the aircraft a current and approved Category II or Category III manual, as appropriate, for that aircraft;
  - (b) The operation is conducted in accordance with the procedures, instructions, and limitations in the appropriate manual; and
  - (c) The instruments and equipment listed in the manual that are required for a particular Category II or Category III operation have been inspected and maintained in accordance with the maintenance program contained in the manual.
- (2) Each operator must keep a current copy of each approved manual at its principal base of operations and must make each manual available for inspection upon request by the Authority.
- (3) Paragraphs (1) and (2) shall not apply to operations conducted by an AOC holder issued a certificate under Part 9 of these Directives, which will have approved Category II or III operations included as a part of its operations manual.

*Implementing Standards: See IS 8.8.1.10 for specific Category II manual requirements.*

#### **8.8.1.11 EXEMPTION FROM CERTAIN CATEGORY II OPERATIONS**

The Authority may authorise deviations from the requirements of subparts 8.8.1.8 and 8.8.1.9 for the operation of small aircraft in Category II operations if the Authority finds that the proposed operation can be safely conducted.

**Note:** *Such authorisation does not permit operation of the aircraft carrying persons or property for compensation or hire.*

**8.8.1.12 DIVERSION DECISION – ENGINE INOPERATIVE**

- (1) Except as provided in paragraph (2), the PIC shall land the aircraft at the nearest suitable aerodrome at which a safe landing can be made whenever an engine of an aircraft fails or is shut down to prevent possible damage.
- (2) If not more than one engine of an aeroplane having three or more engines fails, or its rotation is stopped, the PIC may proceed to an aerodrome if he or she decides that proceeding to that aerodrome is as safe as landing at the nearest suitable aerodrome after considering the-
  - (a) Nature of the malfunction and the possible mechanical difficulties that may occur if flight is continued;
  - (b) Altitude, mass, and usable fuel at the time of engine stoppage;
  - (c) Weather conditions en route and at possible landing points;
  - (d) Air traffic congestion;
  - (e) Kind of terrain; and
  - (f) Familiarity with the aerodrome to be used.

**8.8.1.13 OPERATING NEAR OTHER AIRCRAFT – INCLUDING FORMATION FLIGHTS**

- (1) No person shall operate an aircraft so close to another aircraft as to create a collision hazard.
- (2) No person may operate an aircraft in formation flight except -
  - (a) By arrangement with the PIC of each aircraft in the formation, and
  - (b) If in controlled airspace, in accordance with conditions prescribed by the air traffic control, which includes that:
    - (i) The formation operates as a single aircraft with regard to navigation and position reporting;
    - (ii) Separation between aircraft in the flight shall be the responsibility of the flight leader and the PICs of the other aircraft in flight;
    - (iii) Separation between aircraft shall include periods of transition when aircraft are manoeuvring to attain their own separation within the formation and during join-up and break-away; and
    - (iv) A distance not exceeding 1 km (1/2 nautical mile) laterally and

longitudinally and 30 m (100 ft.) vertically from the flight leader shall be maintained by each aircraft.

- (3) No person shall operate an aircraft, carrying passengers for hire, in formation flight.

#### **8.8.1.14 RIGHT-OF- WAY RULES: EXCEPT WATER OPERATIONS**

##### **(1) General**

- (a) Each pilot shall maintain vigilance so as to see and avoid other aircraft; and
- (b) When a rule of this subsection gives another aircraft the right-of-way, the pilot shall give way to that aircraft and may not pass over, under or ahead of it unless well clear and taking into account the effect of aircraft wake turbulence.
- (c) Each pilot who has the right-of-way shall maintain his or her heading and speed but is still responsible for taking such action, including collision avoidance manoeuvres based on resolution advisories provided by ACAS equipment, as will best avert collision.

- (2) **In distress.** An aircraft in distress has the right-of-way over all other air traffic.

##### **(3) Converging.**

- (a) When aircraft of the same category are converging at approximately the same altitude (except head-on, or nearly so,) the aircraft to the other's right has the right-of-way.
- (b) If the converging aircraft are of different categories-
  - (i) A balloon has the right-of-way over any other category of aircraft;
  - (ii) A glider has the right-of-way over an airship and power driven heavier than air aircraft, and
  - (iii) An airship has the right-of-way over a power driven heavier than air aircraft.

- (4) **Towing or refuelling.** An aircraft towing or refuelling other aircraft has the right-of-way over all other engine-driven aircraft, except aircraft in distress.

- (5) **Approaching head-on.** When aircraft are approaching each other head-on, or nearly so, each pilot of each aircraft shall alter course to the right.

- (6) **Overtaking.** Each aircraft that is being overtaken has the right-of-way and each pilot of an overtaking aircraft, whether climbing, descending or in horizontal flight, shall alter course to the right to pass well clear.

- (7) **Landing.** Aircraft, while on final approach to land or while landing, have the right-of-way over other aircraft in flight or operating on the surface.
- (8) **More than one landing aircraft.** When two or more aircraft are approaching an aerodrome for the purpose of landing, the aircraft at the lower altitude has the right-of-way.
- (9) The PIC shall not take advantage of the right of way landing rules in items (7) and (8) in this subpart to cut in front of another aircraft that is on final approach to land or to overtake that aircraft.
- (10) **Emergency landing.** Aircraft that are compelled to land have the right-of-way over other aircraft.
- (11) **Taking off.** Aircraft taking off have the right-of-way over aircraft taxiing on the manoeuvring area of an aerodrome.
- (12) **Surface movement of aircraft.**
- (a) **Approaching head-on.** When aircraft are approaching each other head-on, or approximately so, each pilot of each aircraft shall stop, or wherever practicable alter course to the right so as to keep well clear.
  - (b) **Converging.** When aircraft are converging on a course, the pilot who has the other aircraft on his right shall give way.
  - (c) **Overtaking.** Each aircraft that is being overtaken has the right-of-way and each pilot of an overtaking aircraft shall keep well clear.
- (13) **Aircraft taxiing on the manoeuvring area of an aerodrome.**
- (a) The pilot of an aircraft taxiing on the manoeuvring area shall stop and hold at all runway-holding positions unless otherwise authorised by the aerodrome control tower.
  - (b) The pilot of an aircraft taxiing on the manoeuvring area shall stop and hold at all lighted stop bars and may proceed further when the lights are switched off.
  - (c) The pilot of an aircraft taxiing on the manoeuvring area of an aerodrome shall give way to aircraft –
    - (i) taking off or about to take off;
    - (ii) landing or in the final stages of an approach to landing.

**8.8.1.15 RIGHT-OF-WAY RULES: WATER OPERATIONS**

- (1) **General.** Each person operating an aircraft on the water shall, insofar as possible, keep clear of all vessels and avoid impeding their navigation, and shall give way to any vessel or other aircraft that is given the right-of-way by any rule of this subsection.
- (2) **Converging or Crossing.** When aircraft, or an aircraft and a vessel, are on crossing courses, the aircraft or vessel to the other's right has the right-of-way.
- (3) **Approaching head-on.** When aircraft, or an aircraft and a vessel, are approaching head-on, or nearly so, each shall alter its course to the right to keep well clear.
- (4) **Overtaking.** Each aircraft or vessel that is being overtaken has the right-of-way, and the one overtaking shall alter course to keep well clear.
- (5) **Special circumstances.** When aircraft, or an aircraft and a vessel, approach so as to involve risk of collision, each aircraft or vessel shall proceed with careful regard to existing circumstances, including the limitations of the respective craft.
- (6) **Landing and taking off.** Aircraft, on landing or taking off from the water, shall keep well clear of all vessels and avoid impeding their navigation.

**8.8.1.16 USE OF AIRCRAFT LIGHTS**

- (1) If an aircraft has red rotating beacon lights, or other lights installed to show that the engine is running, the pilot shall switch those lights on before starting engines and display those lights at all times the engines are running.
- (2) No person may operate an aircraft between the period from sunset to sunrise unless-
  - (a) It has lighted navigation lights; and
  - (b) If anti-collision lights are installed, those lights are lighted.
- (3) No person may park or move an aircraft between the period from sunset to sunrise in, or in a dangerous proximity to, a movement area of an aerodrome, unless the aircraft-
  - (a) Is clearly illuminated;
  - (b) Has lighted navigation lights;
  - (c) Is in an area that is marked by obstruction lights; or
  - (d) Has lights to indicate when the engine is running.



- (4) No person may anchor an aircraft unless that aircraft-
  - (a) Has lighted anchor lights; or
  - (b) Is in an area where lights are not required on vessels.
- (5) No person may operate an aircraft on water during the period from sunset to sunrise unless—
  - (a) It displays lights as required by the International Regulations for Preventing Collisions at Sea (most recent edition); or
  - (b) It shall display lights as similar as possible in characteristics and position to those required by the International Regulations for Preventing Collisions at Sea if it is not practical to display the lights exactly as required.
- (6) A pilot is permitted to switch off or reduce the intensity of any flashing lights fitted to meet the requirements of this subpart if they do or are likely to—
  - (a) Adversely affect the satisfactory performance of duties; or
  - (b) Subject an outside observer to harmful dazzle.

#### **8.8.1.17 SIMULATED INSTRUMENT FLIGHT**

- (1) No person may operate an aircraft in simulated instrument flight unless-
  - (a) That aircraft has fully functioning dual controls;
  - (b) The other control seat is occupied by a safety pilot who holds at least a private pilot licence with category and class ratings appropriate to the aircraft being flown; and
  - (c) The safety pilot has adequate vision forward and to each side of the aircraft, or a competent observer in the aircraft adequately supplements the vision of the safety pilot.
- (2) No person may engage in simulated instrument flight conditions during commercial air transport operations.

#### **8.8.1.18 IN-FLIGHT SIMULATION OF ABNORMAL SITUATIONS**

No person may simulate an abnormal or emergency situation during commercial air transport operations.

**8.8.1.19 DROPPING, SPRAYING AND TOWING**

Except under conditions prescribed by the Authority, no pilot may take the following actions-

- (a) Dropping, dusting or spraying from an aircraft;
- (b) Towing of aircraft or other objects; or
- (c) Allowing parachute descents.

**8.8.1.20 AEROBATIC FLIGHT**

- (1) No person may operate an aircraft in aerobatic flight-
  - (a) Over any city, town or settlement;
  - (b) Over an open air assembly of persons;
  - (c) Within the lateral boundaries of the surface areas of Class B, C, D or E airspace designated for an aerodrome;
  - (d) Below an altitude of 1500 feet (450m) above the surface; or
  - (e) When the flight visibility is less than 3 statute miles (4.8 kilometres)

unless in compliance with any other conditions prescribed by the Authority.

- (2) No person may operate an aircraft in manoeuvres exceeding a bank of 60 degrees or pitch of 30 degrees from level flight altitude unless all occupants of the aircraft are wearing parachutes packed by a qualified parachute rigger licensed in accordance with Part 2 of these Flight Standards Directives in the past 12 calendar months.

**8.8.1.21 FLIGHT TEST AREAS**

No person may flight-test an aircraft except over open water, or sparsely populated areas having light traffic.

**8.8.1.22 PROHIBITED AREAS AND RESTRICTED AREAS**

No person may operate an aircraft in a prohibited area, or in a restricted area, the particulars of which have been duly published, except in accordance with the conditions of the restrictions or by permission of the State over whose territory the areas are established.

**8.8.1.23 OPERATIONS IN MNPS OR RVSM AIRSPACE**

- (1) No person may operate a civil aircraft of Ghana registry in the North Atlantic airspace designated as MNPS airspace or in airspace designated as RVSM without a written authorisation issued by the Authority.
- (2) No person may operate an aircraft in MNPS or RVSM airspace, except in accordance with the conditions of the procedures and restrictions required for this airspace.

**Note 1:** ICAO Doc 9574, *Manual on the Implementation of a 300m (1000 ft.) Vertical Separation between FL 290 and FL410 Inclusive, provides additional guidance.*"

**Note 2:** see GCAD Part7 subparts 7.2.7 and 7.2.8 for requirement regarding navigation equipment for operations in MNPS airspace or RVSM airspace.

**8.8.1.24 OPERATIONS ON OR IN THE VICINITY OF A CONTROLLED OR AN UNCONTROLLED AERODROME**

- (1) When approaching to land at an aerodrome without an operating control tower, each pilot of-
  - (a) An aeroplane shall make all turns of that aeroplane to left or to the right, if appropriately indicated by the authorities having jurisdiction over that aerodrome.
  - (b) A helicopter shall avoid the flow of aeroplanes.
- (2) When departing an aerodrome without an operating control tower, each pilot of an aircraft shall comply with any traffic patterns established by the authority having jurisdiction over that aerodrome.
- (3) Each pilot of an aircraft shall land and take-off into the wind unless safety, the runway configurations, or traffic considerations determine that a different direction is preferable.
- (4) Each pilot operating an aircraft either on or in the vicinity of an aerodrome shall:
  - (a) Observe other aerodrome traffic for the purpose of avoiding collision; and
  - (b) Conform with or avoid the pattern of traffic formed by other aircraft in operation.
- (5) Each pilot of an aircraft when operating to, from, or through an aerodrome having an operational control tower shall also comply with the requirements of 8.8.2.8.
- (6) Aerodrome traffic management at controlled and uncontrolled aerodromes may be supplemented or directed by the use of universal aviation signals, such as the light displays, and visual markings described in IS: 8.8.2.11.

*Implementing Standard: See IS: 8.8.2.11 for the appropriate display of light signals or visual markings.*

#### **8.8.1.25 AERODROME TRAFFIC PATTERN ALTITUDES: TURBOJET, TURBOFAN, OR LARGE AIRCRAFT**

- (1) When arriving at an aerodrome, the PIC of a turbojet, turboprop, or large aircraft shall enter the traffic pattern at least 1500 feet AGL (450m) until further descent is required for landing.
- (2) When departing, the PIC of a turbojet, turboprop, or large aircraft shall climb to 1500 feet AGL (450m) as rapidly as practicable.

#### **8.8.1.26 COMPLIANCE WITH VISUAL AND ELECTRONIC GLIDE SLOPES**

- (1) The PIC of an aeroplane approaching to land on a runway served by a visual approach slope indicator shall maintain an altitude at or above the slope indicator until a lower altitude is necessary for a safe landing.
- (2) The PIC of a turbojet, turboprop, or large aeroplane approaching to land on a runway served by an ILS shall fly that aeroplane at or above the glide slope from the point of interception to the middle marker.

#### **8.8.1.27 RESTRICTION OR SUSPENSION OF OPERATIONS: COMMERCIAL AIR TRANSPORT**

If a PIC or an AOC holder knows of conditions, including aerodrome and runway conditions, that are a hazard to safe operations, that person shall restrict or suspend all commercial air transport operations to such aerodromes and runways as necessary until those conditions are corrected.

#### **8.8.1.28 CONTINUATION OF FLIGHT WHEN DESTINATION AERODROME IS TEMPORARILY RESTRICTED: COMMERCIAL AIR TRANSPORT**

No PIC may allow a flight to continue toward any aerodrome of intended landing where commercial air transport operations have been restricted or suspended, unless-

- (a) In the opinion of the PIC, the conditions that are a hazard to safe operations may reasonably be expected to be corrected by the estimated time of arrival;  
or
- (b) There is no safer procedure.

**8.8.1.29 INTERCEPTION**

- (1) When intercepted by a military or government aircraft, each PIC shall comply with the international standards when interpreting and responding to visual signals and communication as specified in IS: 8.8.1.29.
- (2) No pilot shall conduct an international flight unless the procedures and signals relating to interception of aircraft, as specified in IS: 8.8.1.29, are readily available on the flight deck.

**8.8.1.30 NOISE ABATEMENT PROCEDURES**

- (1) Each AOC holder shall operate its aircraft in accordance with the noise abatement procedures established by the Authority.
- (2) Unless otherwise directed by the Authority, the noise abatement procedures specified by an AOC holder for any one aeroplane type shall be the same for all aerodromes.

**8.8.1.31 OVER –WATER FLIGHTS (HELICOPTERS)**

All helicopters on flights over water, in accordance with GCAD Part 7 subpart 7.8.18, shall be certificated for ditching. Sea state shall be an integral part of ditching information.

**8.8.1.32 AIRCRAFT OPERATING PROCEDURES FOR RATES OF CLIMB AND 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, operators shall specify procedures by which an aircraft climbing or descending to an assigned altitude or flight level, especially with an autopilot engaged, may do so at a rate less than 8 m (26 ft.)/sec or 450 m (1500 ft.)/min (depending on the instrumentation available throughout the last 300 m (1000 ft.) of climb or descent to the assigned level when the pilot is made aware of another aircraft at or approaching an adjacent altitude or flight level.

*Note. Material concerning the development of these procedures is contained in the PANS-OPS (Doc 8168) Volume I, Part III, Section 3, Chapter 3.*

**8.8.1.33 [AAC] ELECTRONIC FLIGHT BAGS (EFBs)**

- (1) Where portable EFBs are used on board an aircraft, the PIC and or the operator or owner shall ensure that they do not affect the performance of the aircraft systems, equipment or the ability to operate the aircraft

- (2) Where EFBs are used on board an aircraft the PIC and or the owner or operator shall:
  - (a) assess the safety risk(s) associated with each EFB function;
  - (b) establish the procedures for the use of, and training requirements for, the device and each EFB.
- (3) When issuing a specific approval for the use of EFBs, the State of Registry shall ensure that:
  - (a) the EFB equipment and its associated installation hardware, including interaction with aircraft systems if applicable, meet the appropriate airworthiness certification requirements;
  - (b) the operator or owner has assessed the risks associated with the operations supported by the EFB function(s);
  - (c) the operator or owner has established requirements for redundancy of the information (if appropriate) contained in and displayed by the EFB function(s);
  - (d) the operator or owner has established and documented procedures for the management of the EFB function(s) including any databases it may use; and
  - (e) the operator or owner has established and documented the procedures for the use of, and training requirements for, the EFB function(s).

*Note.* — Guidance on safety risk assessments is contained in the Safety Management Manual (SMM) (Doc 9859).

#### 8.8.1.34 UNMANNED FREE BALLOONS

- (1) No person shall operate an unmanned free balloon in a manner that would cause a hazard to persons, property or other aircraft.
- (2) **Classification.** Unmanned free balloons shall be classified as:
  - (a) **Light.** An unmanned free balloon which carries a payload or one or more packages with a combined mass of less than 4 kg (9 lb.), unless qualifying as a heavy balloon below, or
  - (b) **Medium.** An unmanned free balloon which carries a payload of two or more packages with a combined mass of 4 kg (9 lb.) or more, but less than 6 kg, unless qualifying as a heavy balloon; or
  - (c) **Heavy.** An unmanned free balloon which carries a payload which:

- (i) Has a combined mass of 6 kg (13 lb.) or more; or
- (ii) Includes a package of 3 kg (6 lb.) or more; or
- (iii) Includes a package of 2 kg (4 lb.) or more with an area density of more than 13 g (28 lb.) per square centimetre; or
- (iv) Uses a rope or other device for suspension of the payload that requires an impact force of 230 N or more to separate the suspended payload from the balloon.

*Note 1: The area density referred to in Subpart 8.8.1.34(2)(a)(iii) is determined by dividing the total mass in grams of the payload package by the area in square centimetres of its smallest surface.*

*Note 2: The impact force of 230 N referred to in Subpart 8.8.1.34(2)(a)(iv) and (4)(i) is a unit of measure of force equivalent to a breaking strain of greater than 50 lb.*

- (3) **Operating Rules.** No person may operate an unmanned free balloon-
- (a) Unless it has received appropriate authorization from the Authority;
  - (b) Across the territory of another State without appropriate authorization from the other State concerned prior to the launching of the balloon;
  - (c) Except in accordance with the conditions specified by the State of Registry and the State(s) to be overflown;
  - (d) In such a manner that the balloon, or any part thereof, including the proximity of its payload with the surface of the earth, creates a hazard to persons or property not associated with the operation.
  - (e) Over the high seas without prior coordination with the appropriate ATS Authority.
- (4) **Operating Limitations and Equipment Requirements.** No person shall operate an unmanned balloon—
- (a) Without authorization from the Authority
  - (b) At or through any level below 18000 m (60000 ft.) pressure-altitude at which:
    - (i) There are clouds or obscuring phenomena of more than 4 octas coverage; or
    - (ii) The horizontal visibility is less than 8 km (5 statute miles).

- (c) By releasing it in a manner that will cause it to fly lower than 300 m (1000 ft.) over the congested areas of cities, towns or settlements or in open-air assembly of persons not associated with the operation.
  - (d) Unless it is equipped with at least two payload flight-termination devices or systems, whether automatic or operated by telecommand, that operate independently of each other.
  - (e) That is polyethylene zero-pressure unless is it equipped with at least two methods, systems, devices or combinations thereof, that function independently of each other for terminating the flight of the balloon envelope;
  - (f) Unless the balloon envelope is equipped with either a radar reflective device(s) or radar reflective material that will present an echo to surface radar operating in the 200 MHz to 2 700 MHz frequency range, and or the balloon is equipped with such other devices as will permit continuous tracking by the operator beyond the range of ground-based radar.
  - (g) In an area where ground-based SSR equipment is in use, unless it is equipped with a secondary surveillance radar transponder, with pressure-altitude reporting capability, which is continuously operating on an assigned code, or which can be turned on when necessary by the tracking station;
  - (h) In an area where ground-based ADS-B equipment is in use, unless it is equipped with an ADS-B transmitter, with pressure-altitude reporting capability, which is continuously operated, or which can be turned on when necessary by the tracking station;
  - (i) With a trailing antenna which requires a force of more than 230 N to break it at any point unless the antenna has coloured pennants or streamers that are attached at not more than 15 m intervals;
  - (j) Below 18000 m (60000 ft.) pressure-altitude between sunset and sunrise or such other period between sunset and sunrise (corrected to the altitude of operations) as may be prescribed by the appropriate ATS Authority, unless the balloon and its attachments and payload, whether or not they become separated during the operations, are lighted;
  - (k) That is equipped with a suspension device (other than a highly conspicuously coloured open parachute) more than 15 m (50 ft.) long between sunrise and sunset below 18000 m (60000 ft.) pressure-altitude unless the suspension device is coloured in alternate bands of high conspicuity colours or has coloured pennants attached.
- (5) **Termination.** The operator of an unmanned free balloon shall activate the appropriate termination device –



- (a) When it becomes known that weather conditions are less than those prescribed for the operation;
  - (b) If a malfunction or any other reason makes further operation hazardous to air traffic or to persons or property on the surface, or
  - (c) Prior to unauthorized entry into the airspace over another State's territory.
- (6) **Pre-flight Notification.**
- (a) No person shall operate a medium or heavy unmanned balloon unless he has made the appropriate notification to the ATS unit;
    - (i) The pre-flight notification contained in (b) below at least seven days prior to the flight, and
    - (ii) Any changes in the pre-launch information no later than
      - (A) six hours before the estimated time of launch, or
      - (B) in the case of solar or cosmic disturbance investigations involving a critical time element, 30 minutes before the estimated time of launch.
  - (b) The pre-flight notification shall contain the following:
    - (i) Balloon flight identification or project code name;
    - (ii) Balloon classification and description;
    - (iii) SSR code, aircraft address or NDB frequency as applicable;
    - (iv) Operator's name and telephone number;
    - (v) Estimated time of launch (or time of commencement and completion of multiple launches);
    - (vi) Number of balloons to be launched and the scheduled interval between launches (if multiple launches);
    - (vii) Expected direction of ascent;
    - (viii) Cruising level(s) (pressure-altitude);
    - (ix) The estimated elapsed time to pass 18000 m (60000 ft.) pressure-altitude or to reach cruising level if at or below 18000 m (60000 ft.) together with the estimated location or if the operation consists of continuous launchings, the time to be included is the estimated time at which the first and last in the series will reach the appropriate level;
    - (x) The estimated date and time of termination of the flight and the planned

location of the impact or recovery area.

- (A) In the case of balloons carrying out flights of long duration, such that the date and time of termination of the flight and the location of impact cannot be forecast with accuracy, the term “long duration” shall be used.
  - (B) If there is to be more than one location of impact or recovery, each location is to be listed together with the appropriate estimated time of impact.
  - (C) If there is to be a series of continuous impacts, the time to be included is the estimated time of the first and the last in the series.
- (7) **Notification of launch.** The operator of a medium or heavy unmanned free balloon shall, immediately after launch, notify the appropriate ATS unit of the following:
- (a) Balloon flight Identification
  - (b) launch site;
  - (c) Actual time of launch;
  - (d) Estimate time at which 18000 m (60000 ft.) pressure-altitude will be passed, or the estimated time at which the cruising level will be reached if at or below 18000 m (60000 ft.) and the estimated location; and
  - (e) Any changes to the information previously notified in the pre-flight notification information.
- (8) **Notification of cancellation.** The operator shall notify the ATS unit immediately of a cancellation of the launch of a medium or heavy unmanned free balloon for which a pre-flight plan has been filed.
- (9) **Position recording and reports.**
- (a) The operator of a heavy unmanned balloon shall monitor the flight path of the balloon and forward reports of the balloon’s position to the ATS Section as follows –
    - (i) For operations at or below 18000 m (60000 ft.) – every two hours;
    - (ii) For operations above 18000 m (60000 ft.) – every 24 hours, or
    - (iii) Immediately if the tracking of the balloon has been lost, providing
      - (A) the balloons last known position, and
      - (B) the re-establishment of tracking of the balloon.

- (b) The operator of a heavy unmanned balloon shall forward to the ATS Section the following information regarding the balloon one hour before the beginning of the planned descent:
  - (i) The current geographical position;
  - (ii) The current level (pressure-altitude);
  - (iii) The forecast time of penetration of 18000 m (60000 ft.) pressure-altitude, if applicable;
  - (iv) The forecast time and location of ground impact.
  
- (c) The Operator of a medium or heavy unmanned free balloon shall notify the appropriate ATS Section when the operation is completed.

## **8.8.2 CONTROL OF AIR TRAFFIC**

### **8.8.2.1 ATC CLEARANCES**

- (1) Each PIC shall obtain an ATC clearance prior to operating a controlled flight, or a portion of a flight as a controlled flight.
- (2) Each PIC shall request an ATC clearance through the submission of a flight plan to an ATC facility including potential re-clearance in flight.
- (3) Whenever an aircraft has requested a clearance involving priority, each PIC shall submit a report explaining the necessity for such priority, if requested by the appropriate ATC facility.
- (4) No person operating an aircraft on a controlled aerodrome may taxi on the manoeuvring area or any runway without clearance from the aerodrome control tower.

### **8.8.2.2 ADHERENCE TO ATC CLEARANCES**

- (1) When an ATC Clearance has been obtained, no PIC may deviate from the clearance, except in an emergency, or unless he or she obtains an amended clearance.

**Note 1:** *A flight plan may cover only part of a flight, as necessary, to describe that portion of the flight or those manoeuvres which are subject to air traffic control. A clearance may cover only part of a current flight plan, as indicated in a clearance limit or by reference to specific manoeuvres such as taxiing, landing or taking off.*

**Note 2:** Paragraph 8.8.2.2(1) does not prohibit a pilot from cancelling an IFR clearance when operating in VMC conditions or cancelling a controlled flight clearance when operating in airspace that does not require controlled flight.

- (2) When operating in airspace requiring controlled flight, no PIC may operate contrary to ATC instructions, except in an emergency.
- (3) Each PIC who deviates from an ATC Clearance or instructions in an emergency, shall notify ATC of that deviation as soon as possible.

### 8.8.2.3 COMMUNICATIONS

- (1) Each person operating an aircraft on a controlled flight shall establish two-way communication with the appropriate ATC facility, on the appropriate radio frequency, and maintain a continuous listening watch on that frequency as required.
- (2) Each person operating an aircraft on a controlled flight shall, except when landing at a controlled aerodrome, advise the appropriate ATC facility as soon as it ceases to be subject to ATC service.

**Note 1:** More specific procedures may be prescribed by the appropriate ATC authority in respect of aircraft forming part of aerodrome traffic at a controlled aerodrome.

**Note 2:** Automatic signalling devices may be used to satisfy the requirement to maintain a continuous listening watch, if authorised by the Authority.

### 8.8.2.4 ROUTE TO BE FLOWN

- (1) Unless otherwise authorised or directed by the appropriate ATC facility, the PIC of a controlled flight shall, in so far as practicable-
  - (a) When on an established ATC route, operate along the defined centre line of that route; or
  - (b) When on any other route, operate directly between the navigation facilities and or points defining that route.
- (2) The PIC of a controlled flight operating along an ATC route defined by reference to VORs shall change over for primary navigation guidance from the facility behind the aircraft to that ahead of it at, or as close as operationally feasible to, the change-over point, where established.

**Note:** These requirements do not prohibit manoeuvring the aircraft to pass well clear of other air traffic or the manoeuvring of the aircraft in VFR conditions to clear the intended flight path both before and during climb or descent.

### 8.8.2.5 INADVERTENT CHANGES

- (1) A PIC shall take the following action in the event that a controlled flight inadvertently deviates from its current flight plan:
  - (a) **Deviation from track.** If the aircraft is off track, the PIC shall adjust the heading of the aircraft to regain track as soon as practicable.
  - (b) **Variation in true airspeed.** Each PIC shall inform the appropriate ATC facility if the average true airspeed at cruising level between reporting points varies from that given in the flight plan or is expected to vary by plus or minus 5 per cent of the true airspeed.
  - (c) **Change in time estimate.** Each PIC shall notify the appropriate ATC facility and give a revised estimated time as soon as possible if the time estimate for a reporting point, flight information region boundary, or destination aerodrome, whichever comes first, is found to be in excess of three minutes from that notified to ATC, or such other period of time as is prescribed by the appropriate ATC authority or on the basis of air navigation regional agreements.
- (2) When an ADS contract is in place, the air traffic services unit shall be informed automatically via data link whenever changes occur beyond the threshold values stipulated by the ADS event contract.

### 8.8.2.6 ATC CLEARANCE: INTENDED CHANGES

Requests for flight plan changes shall include the following information:

- (a) **Change of cruising level.** Aircraft identification, requested new cruising level and cruising speed at this level, and revised time estimates, when applicable, at subsequent flight information region boundaries.
- (b) **Change of route-**
  - (i) **Destination unchanged.** Aircraft identification, flight rules, description of new route of flight including related flight plan data beginning with the position from which requested change of route is to commence, revised time estimates, and any other pertinent information.
  - (ii) **Destination change.** Aircraft identification, flight rules, description of revised route of flight to revised destination aerodrome including related flight plan data, beginning with the position from which requested change of route is to commence, revised time estimates, alternate aerodrome(s), and any other pertinent information.

**8.8.2.7 POSITION REPORTS**

- (1) Each pilot of a controlled flight shall report to the appropriate ATC facility, as soon as possible, the time and level of passing each designated compulsory reporting point, together with any other required information, unless exempted from this requirement by the appropriate ATC authority.
- (2) Each pilot of a controlled flight shall make position reports in relation to additional points or intervals when requested by the appropriate ATC facility.
- (3) When operating via data link communications providing position information to the appropriate air traffic services unit, each pilot of a controlled flight shall only provide voice position reports when requested by the appropriate ATC facility.

**8.8.2.8 OPERATIONS ON OR IN THE VICINITY OF A CONTROLLED AERODROME**

- (1) No person may operate an aircraft to, from, through, or on an aerodrome having an operational control tower unless two-way communications are maintained between that aircraft and the control tower.
- (2) On arrival, each PIC shall establish communications required by paragraph (1) prior to 4 nautical miles (7.4 kilometres) from the aerodrome when operating from the surface up to and including 2,500ft (760m).
- (3) On departure, each PIC shall establish communications with the control tower prior to taxi.
- (4) **Take-off, landing, taxi clearance.** No person may, at any aerodrome with an operating control tower, operate an aircraft on a runway or taxiway or take-off or land an aircraft, unless an appropriate clearance has been received from ATC.

*Note:* A clearance to “taxi to” the take-off runway is not a clearance to taxi on to that runway. It does authorise the PIC to cross other runways during the taxi to the assigned runway. A clearance to “taxi to” any other point on the aerodrome is clearance to cross all runways that intersect the taxi route to the assigned point.

- (5) **Communications failure.** If the radio fails or two-way communication is lost, a PIC may continue a VFR flight operation and land if-
  - (a) The weather conditions are at or above basic VFR minimums; and
  - (b) Clearance to land from the ATC tower is given in accordance with the universal light signals and acknowledged by the PIC as contained in IS: 8.8.2.11(1) and (6) for light signals and acknowledgement.

*Note:* During IFR operations, the two-way communications failure procedures will apply.

**8.8.2.9 UNLAWFUL INTERFERENCE**

A PIC shall, when and if possible, notify the appropriate ATC facility when an aircraft is being subjected to unlawful interference, including-

- (a) Any significant circumstances associated with the unlawful interference; and
- (b) Any deviation from the current flight plan necessitated by the circumstances.

**8.8.2.10 TIME CHECKS**

- (1) Each PIC shall use Co-Ordinated Universal Time (UTC), expressed in hours and minutes of the 24-hour day beginning at midnight, in flight operations.
- (2) Each PIC shall obtain a time check prior to operating a controlled flight and at such other times during the flight as may be necessary.
- (3) Whenever time is used in the application of data link communications, it shall be accurate to within one second of UTC.

*Note: The time checks above in Subparts 8.8.2.10 (1) and (2) are normally obtained from an air traffic services unit unless other arrangements have been made by the operator or by the appropriate ATC Authority.*

**8.8.2.11 UNIVERSAL SIGNALS**

- (1) Upon observing or receiving any of the designated universal aviation signals, each person operating an aircraft shall take such action as may be required by the interpretation of the signal.
- (2) Universal signals shall have only the meanings designated.
- (3) Each person using universal signals in the movement of aircraft shall only use them for the purpose indicated.
- (4) No person may use signals likely to cause confusion with universal aviation signals.

*Implementing Standard: See IS: 8.8.2.11 for a list of universal aviation signals.*

**8.8.2.12 SIGNAL MAN**

- (1) No person shall guide an aircraft unless trained, qualified and approved by the Authority to carry out the functions of a signal man.
- (2) The signal man shall wear a distinctive fluorescent identification vest to allow the flight crew to identify that he or she is the person responsible for the marshalling operation.

**8.8.3 VFR FLIGHT RULES****8.8.3.1 VISUAL METEOROLOGICAL CONDITIONS**

No person may operate an aircraft under VFR when the flight visibility is less than, or at a distance from the clouds that is less than that prescribed, or the corresponding altitude and class of airspace in the following table-

| <b>Airspace and VMC Minimums*</b>   |   |  |   |
|---|---|--|---|
| <b>Airspace Class</b>   | <b>A***B C D E</b>  | <b>F G</b>   |   |
|   |   | Above 900 m (3000 ft.) AMSL or above 300 m (1000 ft.) above terrain, whichever is the higher | At and below 900 m (3000 ft.) AMSL or 300 m (1000 ft.) above terrain, whichever is the higher |
| <b>Distance from cloud</b>  | 1500 m (4920 ft.) horizontally<br>300 m (1000 ft.) vertically   |  | Clear of cloud and in sight of the surface  |
| <b>Flight visibility</b>  | 8 km (5 statute miles) at and above 3050 m (10000 ft.) AMSL<br>5 km (3 statute miles) below 3050 m (10000 ft.) AMSL |  | 5 km (3 statute miles) **   |
| *When the height of the transition altitude is lower than 3050 m (10000 ft.) AMSL, FL 100 should be used in lieu of 10000 ft.   |   |  |   |
| ** When so prescribed by the appropriate ATC Authority lower flight visibilities to 1500 m (4920 ft.) may be permitted for flights operating: <ol style="list-style-type: none"> <li>1. at speeds that, in the prevailing visibility, will give adequate opportunity to observe other traffic or any obstacles in time to avoid collision; or</li> <li>2. in circumstances in which the probability of encounters with other traffic would normally be low, e.g., in areas of low volume traffic and for aerial work at low levels.</li> </ol> Helicopters may be permitted to operate in less than 1500 m (4920 ft.) flight visibility, if manoeuvred at a speed that will give adequate opportunity to observe other traffic or any obstacles in time to avoid collision. |   |  |   |
| ***The VMC minima in Class A airspace are included for guidance to pilots and do not imply acceptance of VFR flights in Class A airspace.   |   |  |   |



**8.8.3.2 VFR WEATHER MINIMUMS FOR TAKE-OFF AND LANDING**

- (1) No person may land or take-off an aircraft under VFR from an aerodrome located within a control zone, or enter the aerodrome traffic zone or traffic pattern airspace unless the—
  - (a) Reported ceiling is at least 450 m (1500 ft.); and
  - (b) Reported ground visibility is at least 5 km (3 statute miles); or,except when a clearance is obtained from ATC.
- (2) No person shall land or take-off an aircraft or enter the traffic pattern under VFR from an aerodrome located outside a control zone, unless VMC conditions are at or above those indicated in Subpart 8.8.3.1.
- (3) The only exception to the required weather minimums of this subpart is during a Special VFR operation.

**8.8.3.3 SPECIAL VFR OPERATIONS**

- (1) No person may conduct a Special VFR flight operation to enter the traffic pattern, land or take-off an aircraft under Special VFR from an aerodrome located in Class B, Class C, Class D or Class E airspace unless-
  - (a) Authorised by an ATC clearance;
  - (b) The aircraft remains clear of clouds; and
  - (c) The flight visibility is at least 1 statute mile.(1.6 kilometres)
- (2) No person may conduct a Special VFR flight operation in an aircraft between sunset and sunrise unless –
  - (a) The PIC is current and qualified for IFR operations; and
  - (b) The aircraft is equipped to be operated in IFR conditions.

**8.8.3.4 VFR CRUISING ALTITUDES**

- (1) Each person operating an aircraft in level cruising flight under VFR at altitudes above 900 m (3000 ft.) from the ground or water, shall maintain a flight level appropriate to the track as specified in the table of cruising levels in IS: 8.8.3.4.
- (2) Subsection (1) does not apply when otherwise authorised by ATC, when operating in a holding pattern, or during manoeuvring in turns.

**8.8.3.5 ATC CLEARANCES FOR VFR FLIGHTS**

Each pilot of a VFR flight shall obtain and comply with ATC clearances and maintain a listening watch before and during operations-

- (a) Within Classes B, C and D airspace;
- (b) As part of aerodrome traffic at controlled aerodromes; and
- (c) Under Special VFR.

**8.8.3.6 VFR FLIGHTS REQUIRING ATC AUTHORISATION**

- (1) Unless authorised by the Authority, no pilot may operate in VFR flight-
  - (a) Above FL 200; or
  - (b) At transonic and supersonic speeds.
- (2) ATC authorisation for VFR flights may not be granted in areas where a RVSM of only 300m (1,000 ft.) is applied above FL 290.
- (3) No person shall operate in VFR flight between sunset and sunrise unless:
  - (a) Authorised by the Authority, and
  - (b) Operating in accordance with any conditions prescribed by the Authority.

**8.8.3.7 WEATHER DETERIORATION BELOW VMC**

Each pilot of a VFR flight operated as a controlled flight shall, when he or she finds that it is not practical or possible to maintain flight in VMC in accordance with the ATC flight plan-

- (a) Request an amended clearance enabling the aircraft to continue in VMC to its destination or to an alternative aerodrome, or to leave the airspace within which an ATC clearance is required;
- (b) If no clearance can be obtained, continue to operate in VMC and notify the appropriate ATC facility of the action being taken either to leave the airspace concerned or to land at the nearest suitable aerodrome;
- (c) Operating within a control zone, request authorisation to operate as a special VFR flight; or
- (d) Request clearance to operate in IFR, if the aircraft is equipped and pilot is currently rated for IFR operations.

**8.8.3.8 CHANGING FROM VFR TO IFR**

Each pilot operating in VFR who wishes to change to IFR shall-

- (a) If a flight plan was submitted, communicate the necessary changes to be effected to its current flight plan; or
- (b) Submit a flight plan to the appropriate ATC facility and obtain a clearance prior to proceeding IFR when in controlled airspace.

**8.8.3.9 TWO-WAY RADIO COMMUNICATION FAILURE IN VFR****(1) Communications Failure: General**

- (a) In the event of communications failure, the pilot shall attempt to establish communications with the appropriate air traffic control unit using all other available means.
- (b) In addition, the pilot shall, when forming part of the aerodrome traffic at a controlled aerodrome, keep a watch for such instructions as may be issued by visual signals.

**(2) If radio failure occurs in VMC while under ATC control, or if VMC conditions are encountered after the failure, each pilot shall—**

- (a) Continue the flight under VMC;
- (b) Land at the nearest suitable aerodrome; and
- (c) Report arrival to the appropriate ATC services unit by the most expeditious means possible.

**8.8.4 IFR FLIGHT RULES****8.8.4.1 APPLICABILITY**

All aircraft operated in accordance with instrument flight procedures shall comply with the instrument flight rules, and the aerodrome instrument approach procedures approved by the Authority where the operation will take place.

*Note: Information for pilots on flight procedure parameters and operational procedures is contained in ICAO Doc 8168, PANS-OPS, Volume I. Criteria for the construction of visual and instrument flight procedures are contained in ICAO DOC 8186, PANS-OPS, Volume II. Obstacle clearance criteria and procedures used in certain States may differ from PANS-OPS, and knowledge of these differences is important for safety reasons.*

**8.8.4.2 IFR IN CONTROLLED AIRSPACE**

No person may operate an aircraft in controlled airspace under IFR unless that person has-

- (a) Filed an IFR flight plan; and
- (b) Received an appropriate ATC clearance.

**8.8.4.3 IFR FLIGHTS OUTSIDE CONTROLLED AIRSPACE**

- (1) Each PIC of an IFR flight operating outside controlled airspace but within or into areas, or along routes, designated by the appropriate ATC authority, shall maintain a listening watch on the appropriate radio frequency and establish two-way communication, as necessary, with the ATC facility providing flight information service.
- (2) Each PIC of an IFR flight operating outside controlled airspace for which the appropriate ATC authority requires a flight plan, a listening watch on the appropriate radio frequency and establishment of two-way communication, as necessary, with the ATC facility providing flight information service, shall report position as specified for controlled flights.

**8.8.4.4 IFR TAKE-OFF MINIMUMS FOR COMMERCIAL AIR TRANSPORT**

Unless otherwise authorised by the Authority, no pilot operating an aircraft in commercial air transport operations may accept a clearance to take off from a civil aerodrome under IFR unless weather conditions are at or above-

- (a) For aircraft, other than helicopters, having two engines or less – 1 statute mile (1.6 kilometres) visibility.
- (b) For aircraft having more than two engines- ½ statute mile (800 meters) visibility.
- (c) For helicopters – ½ statute mile (800 meters) visibility.

**8.8.4.5 MINIMUM ALTITUDES FOR IFR OPERATIONS**

- (1) ***Operation of aircraft at minimum altitudes.***

Except when necessary for take-off or landing, no person may operate an aircraft under IFR below—

- (a) The applicable minimum altitudes prescribed by the authorities having jurisdiction over the airspace being overflown; or

- (b) If no applicable minimum altitude is prescribed by the authorities—
  - (i) **Over** high terrain or in mountainous areas, at a level which is at least 600 m (2000 ft.) above the highest obstacle located within 8 km (5 statute miles) of the estimated position of the aircraft; and
  - (ii) **Elsewhere** than as specified in (i), at a level which is at least 300 m (1000 ft.) above the highest obstacle located within 8 km (5 statute miles) of the estimated position of the aircraft.
- (c) If an MEA and a MOCA are prescribed for a particular route or route segment, a person may operate an aircraft below the MEA down to, but not below, the MOCA, when within 40.7 km (22 nautical miles) of the VOR concerned.

(2) **Climb for obstacle clearance.**

- (a) If unable to communicate with ATC, each pilot shall climb to a higher minimum IFR altitude immediately after passing the point beyond which that minimum altitude applies
- (b) If ground obstructions intervene, each pilot shall climb to a point beyond which that higher minimum altitude applies, at or above the applicable Minimum Crossing Altitude.

#### 8.8.4.6 MINIMUM ALTITUDES FOR USE OF AN AUTOPILOT

- (1) For en route operations, no person may use an autopilot at an altitude above the terrain that is less than 500 ft. (152 m).

**Note:** *If the maximum altitude loss specified in the AFM for a malfunction under cruise conditions when multiplied by two is more than 500 ft., (152 m) then it becomes the controlling minimum altitude for use of the autopilot.*

- (2) For instrument approach operations, no person may use an autopilot at an altitude above the terrain that is less than 50 ft. (15m m) below the MDA or DH.

**Note:** *If the maximum altitude loss specified in the AFM for a malfunction under approach conditions when multiplied by two is more than 50 ft., (15 m) then it becomes the controlling minimum altitude for use of the autopilot.*

- (3) For Category III approaches, the Authority may approve the use of a flight control guidance system with automatic capability to touchdown.

**8.8.4.7 IFR CRUISING ALTITUDE OR FLIGHT LEVEL IN CONTROLLED AIRSPACE**

- (1) Each person operating an aircraft under IFR in level cruising flight in controlled airspace shall maintain the altitude or flight level assigned to that aircraft by ATC.
- (2) If the ATC clearance assigns “VFR conditions on-top,” each person shall maintain a VFR cruising altitude in VMC.
- (3) Each person operating an aircraft in level cruising flight under IFR, or if authorised to employ cruise climb techniques between two levels, shall maintain a flight level appropriate to the track as specified in the table of cruising levels in IS: 8.8.3.4 or according to a modified table of cruising levels when so prescribed in accordance with IS: 8.8.3.4 for flight above FL 410.
- (4) Subsection (3) above shall not apply when otherwise authorised by ATC Section or as specified in Aeronautical Information Publications.

**8.8.4.8 IFR CRUISING ALTITUDE OR FLIGHT LEVEL IN UNCONTROLLED AIRSPACE**

- (1) Each person operating an aircraft in level cruising flight under IFR, outside of controlled airspace, shall maintain a flight level appropriate to the track as specified in the table of cruising levels in IS: 8.8.3.4 or according to a modified table of cruising levels when so prescribed in accordance with IS: 8.8.3.4 for flight above FL 410.
- (2) A person may deviate from the cruising altitudes specified in paragraph (1) only when—
  - (a) Authorised by the ATC Section for flight at or below 900 m (3000 ft.) above MSL; or
  - (b) When otherwise authorised by the ATC Section.

**8.8.4.9 IFR RADIO COMMUNICATIONS**

Each PIC of an aircraft operated under IFR in controlled airspace shall have a continuous watch maintained on the appropriate frequency and shall report by radio as soon as possible-

- (a) The time and altitude of passing each designated reporting point, or the reporting points specified by ATC, except that while the aircraft is under radar control, only the passing of those reporting points specifically requested by ATC need be reported;
- (b) Any unforecast weather conditions encountered; and
- (c) Any other information relating to the safety of flight, such as hazardous weather or abnormal radio station indications.

**8.8.4.10 OPERATION UNDER IFR IN CONTROLLED AIRSPACE: MALFUNCTION REPORTS**

- (1) The PIC of each aircraft operated in controlled airspace under IFR shall report as soon as practicable to ATC any malfunctions of navigational, approach, or communication equipment occurring in flight.
- (2) In each report specified in paragraph (1), the PIC shall include the-
  - (a) Aircraft identification;
  - (b) Equipment affected;
  - (c) Degree to which the capability of the pilot to operate under IFR in the ATC system is impaired; and
  - (d) Nature and extent of assistance desired from ATC.

**8.8.4.11 CONTINUATION OF IFR FLIGHT TOWARD A DESTINATION**

No pilot may continue an IFR flight toward an aerodrome or heliport of intended landing, unless the latest available meteorological information indicates that the conditions at that aerodrome or heliport, or at least one destination alternate aerodrome or heliport will, at the expected time of arrival, be at or above the specified instrument approach minima.

**8.8.4.12 INSTRUMENT APPROACH PROCEDURES AND IFR LANDING MINIMUMS**

- (1) No person shall make an instrument approach at an aerodrome except in accordance with IFR weather minimums and instrument approach procedures established for that aerodrome as set forth by the Authority.
- (2) No AOC holder shall make an instrument approach at an aerodrome except as set forth in the AOC holder's operations specifications.
- (3) An instrument approach shall not be continued beyond the outer marker fix in case of precision approach or below 300 meters (1000 ft.) above the aerodrome in case of non-precision unless the reported visibility or controlling RVR is above the specified minimum. The approach may be continued to DA/H or MDA/H only if the reported visibility or controlling RVR is at or above the specified minimum. In any case an aeroplane shall not continue its approach to land at any aerodrome beyond a point at which the limits of the operating minima specified for that aerodrome would be infringed.

**Note:** Controlling RVR means the reported values of one or more RVR reporting locations (touchdown, mid-point and stop-end) used to determine whether operating minima are or are not met. Where RVR is used the controlling RVR is the touchdown RVR, unless otherwise specified.

- (4) One or more instrument approach procedure(s) designed in accordance with the classification of instrument approach and landing 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.
- (5) All aircraft operated in accordance with Instrument Flight Rules shall comply with the instrument flight procedures approved by the state in which the aerodrome is located.
- (6) The provisions contained in 8.8.4.11 and 8.8.4.12 shall also apply to all aircraft and heliports.

#### **8.8.4.13 COMMENCING AN INSTRUMENT APPROACH**

- (1) No pilot may continue an approach below 300 m (1,000 ft.) above the aerodrome elevation or into the final approach segment unless -
  - (a) A source approved by the Authority issues a weather report for that aerodrome; and
  - (b) The latest weather report for that aerodrome reports the visibility or controlling RVR to be equal to or more than the minimums prescribed for that procedure.
- (2) If a pilot begins the final approach segment of an instrument approach procedure and subsequently receives a weather report indicating below-minimum conditions, the pilot may continue the approach to DH or MDA.

**Note 1:** For the purpose of this subsection, the final approach segment begins at the final approach fix or facility prescribed in the instrument approach procedure. When a final approach fix is not prescribed for a procedure that includes a procedure turn, the final approach segment begins at the point where the procedure turn is completed, and the aircraft is established inbound toward the aerodrome on the final approach course within the distance prescribed in the procedure.

**Note 2** – Criteria for the Final Approach Segment is contained in ICAO Doc 8168, PANS-OPS, Volume H.

**Note 3** – Controlling RVR means the reported values of one or more RVR reporting locations (touchdown, mid-point and stop-end) used to determine whether operating minima are or are not met. Where RVR is used, the controlling RVR is the touchdown RVR, unless otherwise specified by State criteria.

#### **8.8.4.14 INSTRUMENT APPROACHES TO CIVIL AERODROMES**

- (1) Each person operating a civil aircraft shall use a standard instrument approach procedure prescribed by the authorities having jurisdiction over the aerodrome, unless otherwise authorised by the Authority.



- (2) **Authorised DH or MDA.** For the purpose of this section, when the approach procedure being used provides for and requires the use of a DH or MDA, the authorised DH or MDA is the highest of the following:
- (a) The DH or MDA prescribed by the approach procedure.
  - (b) The DH or MDA prescribed for the PIC.
  - (c) The DH or MDA for which the aircraft is equipped.

#### **8.8.4.15 OPERATION BELOW DH OR MDA**

Where a DH or MDA is applicable, no pilot may operate a civil aircraft at any aerodrome or heliport below the authorised MDA, or continue an approach below the authorised DH unless-

- (a) The aircraft is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal manoeuvres;
- (b) For commercial air transport operations, a descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing;
- (c) The reported flight visibility is not less than the visibility prescribed in the standard instrument approach being used or the controlling RVR is above the specified minimum; and
- (d) At least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot-
  - (i) The approach light system, except that the pilot may not descend below 100 feet (30 m) above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are distinctly visible and identifiable;
  - (ii) The threshold;
  - (iii) The threshold markings;
  - (iv) Threshold lights;
  - (v) The runway end identifier lights;
  - (vi) The visual approach slope indicator;
  - (vii) The touchdown zone or touchdown zone markings;
  - (viii) The touchdown zone lights;

- (ix) The runway or runway markings; or
- (x) The runway lights.

**Note 1:** Controlling RVR means the reported values of one or more RVR reporting locations (touchdown, mid-point and stop-end) used to determine whether operating minima are or are not met. Where RVR is used, the controlling RVR is the touchdown RVR, unless otherwise specified by criteria established by Ghana.

**Note 2:** These visual references above do not apply to Category II and III operations. The required visual references under Category II and III operations are stated in the AOC holder's approved operations specifications or a special authorisation prescribed by the Authority.

#### **8.8.4.16 LANDING DURING INSTRUMENT METEOROLOGICAL CONDITIONS**

No pilot operating a civil aircraft may land that aircraft when the flight visibility is less than the visibility prescribed in the standard instrument approach procedure being used.

#### **8.8.4.17 EXECUTION OF A MISSED APPROACH PROCEDURE**

Each pilot operating a civil aircraft shall immediately execute an appropriate missed approach procedure when either of the following conditions exist:

- (a) Whenever the required visual reference criteria is not met in the following situations:
  - (i) When the aircraft is being operated below MDA; or
  - (ii) Upon arrival at the missed approach point, including a DH where a DH is specified and its use is required, and at any time after that until touchdown.
- (b) Whenever an identifiable part of the aerodrome is not distinctly visible to the pilot during a circling manoeuvre at or above MDA, unless the inability to see an identifiable part of the aerodrome results only from a normal bank of the aircraft during the circling approach.

#### **8.8.4.18 CHANGE FROM IFR FLIGHT TO VFR FLIGHT**

- (1) A pilot electing to change from IFR flight to VFR flight shall notify the appropriate ATC facility specifically that the IFR flight is cancelled and then communicate the changes to be made to his current flight plan.

- (2) When a pilot operating under IFR encounters VMC, he or she may not cancel the IFR flight unless it is anticipated, and intended, that the flight will be continued for a reasonable period of time in uninterrupted VMC.

#### **8.8.4.19 TWO-WAY RADIO COMMUNICATIONS FAILURE IN IFR**

##### **Communications Failure: General**

- (a) In the event of communication failure, the pilot shall attempt to establish communications with the appropriate air traffic control unit using all other available means.
- (b) In addition, the pilot shall, when forming part of the aerodrome traffic at a controlled aerodrome, shall keep a watch for such instructions as may be issued by visual signals.
- (c) If radio failure occurs in VMC while under ATC control, or if VMC conditions are encountered after the failure, each pilot shall—
- (i) Continue the flight under VMC;
  - (ii) Land at the nearest suitable aerodrome; and
  - (iii) Report arrival to the appropriate ATC services unit by the most expeditious means possible.
- (d) If two-way radio communication failure occurs in IMC, or when the pilot of an IFR flight considers it inadvisable to continue the flight in VMC, the PIC shall:
- (i) unless otherwise prescribed on the basis of regional air navigation agreement, in airspace where radar is not used in the provision of air traffic control, maintain the last assigned speed and level, or minimum flight altitude if higher, for a period of 20 minutes following the aircraft's failure to report its position over a compulsory reporting point and thereafter adjust level and speed in accordance with the filed flight plan;
  - (ii) in airspace where radar is used in the provision of air traffic control, maintain the last assigned speed and level, or minimum flight altitude if higher, for a period of 7 minutes following -
    - (A) The time the last assigned level or minimum flight altitude is reached; or
    - (B) The time the transponder is set to Code 7600; or
    - (C) The aircraft's failure to report its position over a compulsory reporting point; whichever is later, and thereafter adjust level and speed in accordance with the filed flight plan;
  - (iii) when being radar vectored or having been directed by ATC to proceed offset using area navigation (RNAV) without a specified limit, re-join the

current flight plan route no later than the next significant point, taking into consideration the applicable minimum flight altitude;

- (iv) proceed according to the current flight plan route to the appropriate designated navigation aid or fix serving the destination aerodrome and, when required to ensure compliance with (v) below, hold over this aid or fix until commencement of descent;
- (v) commence descent from the navigation aid or fix specified in (iv) at, or as close as possible to, the expected approach time last received and acknowledged; or, if no expected approach time has been received and acknowledged, at, or as close as possible to the estimated time of arrival resulting from the current flight plan;
- (vi) complete a normal instrument approach procedure as specified for the designated navigation aid or fix; and
- (vii) land, if possible, within 30 minutes after the estimated time of arrival specified in (v) or the last acknowledged expected approach time, whichever is later.

#### **8.8.4.20 THRESHOLD CROSSING HEIGHT FOR 3D INSTRUMENT APPROACH OPERATIONS**

An operator shall establish operational procedures designed to ensure that an aeroplane being used to conduct 3D approach operations crosses the threshold by a safe margin with the aeroplane in the landing configuration and attitude.

### **8.9 PASSENGERS AND PASSENGER HANDLING**

#### **8.9.1 ALL PASSENGER CARRYING OPERATIONS**

##### **8.9.1.1 UNACCEPTABLE CONDUCT**

- (1) No person on board may interfere with a crewmember in the performance of duties.
- (2) Each passenger shall fasten his or her seat belt and keep it fastened while the seat belt sign is lighted.
- (3) No person on board an aircraft shall recklessly or negligently act or omit to act in such a manner as to endanger the aircraft or persons and property therein.
- (4) No person may secrete himself or herself nor secrete cargo on board an aircraft.
- (5) No person shall smoke while the no-smoking sign is lighted.

- (6) No person shall smoke in any aircraft lavatory.
- (7) No person shall tamper with, disable or destroy any smoke detector installed in any aeroplane lavatory.

#### 8.9.1.2 REFUELLING WITH PASSENGERS ON BOARD

- (1) No PIC may allow an aircraft to be refuelled when passengers are embarking, on board or disembarking unless-
  - (a) The aircraft is manned by qualified personnel ready to initiate and direct an evacuation; and
  - (b) Two-way communication is maintained between the qualified personnel in the aircraft and the ground crew supervising the refuelling.
- (2) **Helicopters.** No PIC may allow a helicopter to be refuelled when passengers are embarking, on board, or disembarking; or the rotors are turning or when oxygen is being replenished unless—
  - (a) The helicopter is manned by qualified personnel ready to initiate and direct an evacuation; and
  - (b) Constant two-way communication is maintained between the qualified personnel in the helicopter and the ground crew supervising the refuelling and;
  - (c) During an emergency shutdown procedure, the flight crew shall ensure that any personnel or passengers outside the helicopter are clear of the rotor area.
- (3) The operator shall establish procedures and specify conditions under which such refuelling may be carried out.
- (4) A helicopter shall not be refuelled with AVGAS (aviation gasoline) or wide-cut type fuel or a mixture of these types of fuel, when passengers are on board
- (5) A helicopter shall not be defueled at any time when:
  - (a) passengers remain on board; or
  - (b) passengers are embarking or disembarking; or
  - (c) oxygen is being replenished

**Note:** Additional precautions are required when refuelling with fuels other than aviation kerosene or when refuelling results in a mixture of aviation kerosene with other aviation turbine fuels or when an open line is used.

**8.9.1.3 PASSENGER SEATS, SAFETY BELT AND SHOULDER HARNESES**

- (1) The PIC shall ensure that each person on board occupies an approved seat or berth with their own individual safety belt and shoulder harness (if installed) properly secured about them during take-off and landing.
- (2) Each passenger shall have his seatbelt securely fastened at any other time the PIC determines it is necessary for safety.
- (3) A safety belt provided for the occupant of a seat may not be used during take-off and landing by more than one person who has reached his second birthday.

*Note: When cabin crew are required in a commercial air transport operation, the PIC may delegate this responsibility, but shall ascertain that the proper briefing has been conducted prior to take-off.*

**8.9.1.4 PASSENGER BRIEFING**

- (1) The PIC shall ensure that crew members and passengers are made familiar, by means of an oral briefing or by other means, with the location and use of the following items, if appropriate—
  - (a) Seat belts;
  - (b) Emergency exits;
  - (c) Life jackets;
  - (d) Oxygen dispensing equipment;
  - (e) Other emergency equipment provided for individual use, including passenger emergency briefing cards.
- (2) The Operator shall ensure that all persons on board are aware of the locations and general manner of use of the principal emergency equipment carried for collective use.

*Note: For commercial air transport operations, the briefing shall contain all subjects approved by the Authority for the specific operations conducted as included in the pertinent Operations Manual.*

*Note: When cabin crew are required in a commercial air transport operation, the PIC may delegate this responsibility, but shall ascertain that the proper briefing has been conducted prior to take-off.*

- (3) During take-off and landing, and whenever by reason of turbulence or any emergency occurring during flight the precaution is considered necessary, cabin crew shall ensure that all passengers aboard the aeroplane fasten their seat belts so as to be secured in their seats.

- (4) For helicopter off-shore operations, the PIC shall ensure that each occupant of the aircraft wear-
  - (a) A life jacket or integrated survival suit, when operating beyond auto rotational distance from land;
  - (b) A survival suit, when the sea temperature is less than 10°C or when the estimated rescue time exceeds the calculated survival time.

#### **8.9.1.5 IN-FLIGHT EMERGENCY INSTRUCTION**

In an emergency during flight the PIC shall ensure that all persons on board are instructed in such emergency action as may be appropriate to the circumstances.

*Note: When cabin crew are required in a commercial air transport operation, the PIC may delegate this responsibility, but shall ascertain that the proper briefing has been conducted.*

#### **8.9.1.6 PASSENGER OXYGEN: MINIMUM SUPPLY AND USE**

- (1) The PIC shall ensure that breathing oxygen and masks are available to passengers in sufficient quantities for all flights at such altitude where a lack of oxygen might harmfully affect passengers.
- (2) The PIC shall ensure that the minimum supply of oxygen prescribed by the Authority is on board the aircraft.
- (3) The requirements for Oxygen storage and dispensing apparatus are prescribed in Part 7 of these Flight Standards Directives.
- (4) The PIC shall require all passengers to use oxygen continuously at cabin pressure altitudes above 13,000 ft. (4,000 m).

#### **8.9.1.7 ALCOHOL OR DRUGS**

No person may permit the boarding or serving of any person who appears to be intoxicated or who demonstrates, by manner or physical indications, that that person is under the influence of drug, except a medical patient under proper care.

### **8.9.2 COMMERCIAL AIR TRANSPORT PASSENGER CARRYING OPERATIONS**

#### **8.9.2.1 PASSENGER COMPLIANCE WITH INSTRUCTIONS**

Each passenger on a commercial air transport flight shall comply with instructions given by a crew member in compliance with this section.

**8.9.2.2 DENIAL OF TRANSPORTATION**

An AOC holder may deny transportation because a passenger-

- (a) Refuses to comply with the instructions regarding exit seating restrictions prescribed by the Authority; or
- (b) Has a handicap that can be physically accommodated only by an exit row seat.

**8.9.2.3 CARRIAGE OF PERSONS WITHOUT COMPLIANCE WITH THESE PASSENGER - CARRYING REQUIREMENTS**

- (1) The passenger-carrying requirements of paragraph (2) do not apply when carrying-
  - (a) A crew member not required for the flight;
  - (b) A representative of the Authority on official duty;
  - (c) A person necessary to the safety or security of cargo or animals; or
  - (d) Any person authorised by the AOC holder's Operations Manual procedures, as approved by the Authority.
- (2) No person may be carried without compliance to the passenger carrying requirements unless-
  - (a) There is an approved seat with an approved seat belt for that person;
  - (b) That seat is located so that the occupant is not in any position to interfere with the flight crew members performing their duties;
  - (c) There is unobstructed access from their seat to the flight deck or a regular or emergency exit;
  - (d) There is a means for notifying that person when smoking is prohibited and when seat belts shall be fastened; and
  - (e) That person has been orally briefed by a crew member on the use of emergency equipment and exits.

**8.9.2.4 CABIN CREW AT DUTY STATIONS**

- (1) During taxi, cabin crewmembers shall remain at their duty stations with safety belts and shoulder harness fastened except to perform duties related to the safety of the aircraft and its occupants.



- (2) During take-off and landing, cabin crewmembers shall be located as near as practicable to required floor level exits and shall be uniformly distributed throughout the aircraft to provide the most effective egress of passengers in the event of an emergency evacuation.
- (3) When passengers are on board a parked aircraft, cabin crewmembers (or another person qualified in emergency evacuation procedures for the aircraft) will be placed in the following manner:
  - (a) If only one qualified person is required, that person shall be located in accordance with the AOC holder's Operations Manual procedures.
  - (b) If more than one qualified person is required, those persons shall be spaced throughout the cabin to provide the most effective assistance for the evacuation in case of an emergency.

#### **8.9.2.5 EVACUATION CAPABILITY**

The PIC, SCCM and other person assigned by the AOC holder shall ensure that, when passengers are on board the aircraft prior to movement on the surface, at least one floor-level exit provides for egress of passengers through normal or emergency means.

#### **8.9.2.6 ARMING OF AUTOMATIC EMERGENCY EXITS**

No person may cause an aircraft carrying passengers to be moved on the surface, take-off or land unless each automatically deployable emergency evacuation assisting means installed on the aircraft is ready for evacuation.

#### **8.9.2.7 ACCESSIBILITY OF EMERGENCY EXITS AND EQUIPMENT**

No person may allow carry-on baggage or other items to block access to the emergency exits when the aircraft is moving on the surface, during take-off or landing, or while passengers remain on board.

#### **8.9.2.8 STOPS WHERE PASSENGERS REMAIN ON BOARD**

- (1) At stops where passengers remain on board the aircraft, the PIC, the co-pilot, or both shall ensure that-
  - (a) All engines are shut down;
  - (b) At least one floor level exit remains open to provide for the deplaning of passengers; and

- (c) There is at least one person immediately available who is qualified in the emergency evacuation of the aircraft and who has been identified to the passengers on board as responsible for passenger safety.
- (2) If refuelling with passengers on board, the PIC or a designated company representative shall ensure that the AOC holder's Operations Manual procedures are followed.

#### **8.9.2.9 PASSENGER LOADING AND UNLOADING - AOC**

No person shall allow passenger loading or unloading of a propeller driven aircraft unless all engines are either shut down or the aircraft is using a passenger jetway to load and unload passengers.

#### **8.9.2.10 CARRIAGE OF PERSONS WITH REDUCED MOBILITY**

- (1) No person may allow a person of reduced mobility to occupy seats where their presence could-
- (a) Impede the crew in their duties;
  - (b) Obstruct access to emergency equipment; or
  - (c) Impede the emergency evacuation of the aircraft.
- (2) No person shall operate an aircraft without complying with the requirements pertaining to persons with disability contained in the Ghana Civil Aviation (Persons with Disability) Directives.

#### **8.9.2.11 EXIT ROW SEATING**

No AOC holder shall allow a passenger to sit in an emergency exit row if the PIC or SCCM determine that it is likely that the passenger would be unable to understand and perform the functions necessary to open an exit and to exit rapidly.

*Note: See IS: 8.9.2.11 for additional requirements pertaining to exit row seating.*

#### **8.9.2.12 PROHIBITION AGAINST CARRIAGE OF WEAPONS**

No person may, while on board an aircraft being operated in commercial air transport, carry on or about their person a deadly or dangerous weapon, either concealed or unconcealed.

**Note:** This section does not apply to officials or employees of the State who are authorised to carry weapons or crew members and other persons authorised by the AOC holder to carry arms.

**8.9.2.13 OXYGEN FOR MEDICAL USE BY PASSENGERS**

- (1) An AOC holder may allow a passenger to carry and operate equipment for the storage, generation or dispensing of medical oxygen only as prescribed by the Authority.
- (2) No person may smoke, and no crewmember may allow any person to smoke within 10 feet (2 m) of oxygen storage and dispensing equipment carried for the medical use of a passenger.
- (3) No crew member may allow any person to connect or disconnect oxygen dispensing equipment to or from an oxygen cylinder while any other passenger is aboard the aircraft.

**8.9.2.14 CARRY-ON BAGGAGE**

- (1) No person may allow the boarding of carry-on baggage unless it can be adequately and securely stowed in accordance with the AOC holder's approved Operations Manual procedures.
- (2) No person may allow aircraft passenger entry doors to be closed in preparation for taxi or pushback unless at least one required crew member has verified that each article of baggage has been properly stowed in overhead racks with approved restraining devices or doors or in approved locations aft of the bulkhead.
- (3) No person may allow carry-on baggage to be stowed in a location that would cause that location to be loaded beyond its maximum placard mass limitation.

**Note:** *The stowage locations shall be capable of restraining the articles in crash impacts severe enough to induce the ultimate inertia forces specified in the emergency landing conditions under which the aircraft was type-certified.*

**8.9.2.15 CARRIAGE OF CARGO IN PASSENGER COMPARTMENTS**

- (1) No person may allow the carriage of cargo in the passenger compartment of an aircraft except as specified in 8.9.2.15(2).
- (2) Cargo may be carried anywhere in the passenger compartment if it is carried in an approved cargo bin that meets the following requirements—
  - (a) The bin must withstand the load factors and emergency landing conditions applicable to the passenger seats of the aircraft in which the bin is installed, multiplied by a factor of 1.15, using the combined mass of the bin and the maximum mass of cargo that may be carried in the bin.
  - (b) The maximum mass of cargo that the bin is approved to carry and any instructions necessary to insure proper mass distribution within the bin

shall be conspicuously marked on the bin.

**Implementation Standard:** See IS: 8.9.2.15 for additional requirements pertaining to carriage of cargo in passenger compartments.

#### 8.9.2.16 PASSENGER INFORMATION SIGNS

The PIC shall turn on required passenger information signs during any movement on the surface, for each take-off and each landing, and when otherwise considered to be necessary.

#### 8.9.2.17 REQUIRED PASSENGER BRIEFING

- (1) No person may commence a take-off unless the passengers are briefed prior to take-off in accordance with the AOC holder's Operations Manual procedures on:
  - (a) Smoking limitations and prohibitions;
  - (b) Emergency exit location and use;
  - (c) Use of safety belts;
  - (d) Emergency floatation means location and use;
  - (e) Fire extinguisher location and operation;
  - (f) Placement of seat backs;
  - (g) If flight is above 10000 ft. MSL, (3050 m) the normal and emergency use of oxygen;
  - (h) The passenger briefing card; and
  - (i) Limitations and prohibitions on the use of electronic devices.
- (2) Immediately before or immediately after turning the seat belt sign off, the PIC or co-pilot shall ensure that the passengers are briefed to keep their seat belts fastened while seated, even when the seat belt sign is off.
- (3) Before each take-off, the PIC or co-pilot shall ensure that any persons of reduced mobility are personally briefed on-
  - (a) The route to the most appropriate exit; and
  - (b) The time to begin moving to the exit in event of an emergency.

**8.9.2.18 PASSENGER BRIEFING: EXTENDED OVER WATER OPERATIONS**

No person may commence extended overwater operations unless all passengers have been orally briefed on the location and operations of life preservers, life rafts and other floatation means, including a demonstration of the method of donning and inflating a life preserver.

**8.9.2.19 PASSENGER SEAT BELTS**

- (1) Each passenger occupying a seat or berth shall fasten his or her safety belt and keep it fastened while the “Fasten Seat Belt” sign is lighted or, in aircraft not equipped with such a sign, whenever instructed by the PIC.
- (2) No passenger safety belt may be used by more than one occupant during take-off and landing.
- (3) At each unoccupied seat, the safety belt and shoulder harness, if installed, shall be secured so as not to interfere with crew members in the performance of their duties or with the rapid egress of occupants in an emergency.

*Note: A person who has not reached his or her second birthday shall be secured by an infant seat belt in a manner approved in the Operations Manual.*

*Note: A berth, such as a multiple lounge or divan seat, may be occupied by two persons provided it is equipped with an approved safety belt for each person and is used during en route flight only.*

**8.9.2.20 PASSENGER SEAT BACKS**

No PIC or co-pilot may allow the take-off or landing of an aircraft unless each passenger seat back is in the upright position.

*Note: Exceptions may only be made in accordance with procedures in the AOC holder's Operations Manual provided the seat back does not obstruct any passenger's access to the aisle or to any emergency exit.*

**8.9.2.21 STOWAGE OF FOOD, BEVERAGE AND PASSENGER SERVICE**

No PIC, co-pilot or SCCM may allow the movement of an aircraft on the surface, or the take-off or landing of an aircraft —

- (a) When any food, beverage or tableware furnished by the AOC holder is located at any passenger seat; and
- (b) Unless each food and beverage tray and seat back tray table is in the stowed position.

**8.9.2.22 SECURING OF ITEMS OF MASS IN PASSENGER COMPARTMENT**

- (1) No person may allow the take-off or landing of an aircraft unless each item of mass in the passenger cabin is properly secured to prevent it from becoming a hazard during taxi, take-off and landing and during turbulent weather conditions.
- (2) No person may allow an aircraft to move on the surface, take-off or land unless each passenger serving cart is secured in its stowed position.

**8.10 CREW MEMBER AND FLIGHT OPERATIONS OFFICER QUALIFICATIONS: COMMERCIAL AIR TRANSPORT****8.10.1 LIMITATION OF PRIVILEGES OF PILOTS WHO HAVE ATTAINED THEIR 60TH BIRTHDAY AND CURTAILMENT OF PRIVILEGES OF PILOTS WHO HAVE ATTAINED THEIR 65TH BIRTHDAY**

- (1) No person may serve nor may any AOC holder use a person as a required PIC in single pilot operations on aircraft or engaged in commercial air transport operations if that person has reached his 60th birthday.
- (2) For aircraft engaged in commercial air transport operations requiring more than one pilot as flight crewmembers, the AOC holder may use one pilot up to the age of 65 provided that the other pilot is less than the age of 60.
- (3) For aircraft engaged in long-range commercial air transport operations requiring more than one pilot as flight crewmembers, the AOC holder may use one pilot up to age 65 provided that the other pilot is less than age 60.
- (4) Check pilots who have reached their 65th birthday or who do not hold an appropriate medical certificate may continue their check pilot functions but may not serve as or occupy the position of a required pilot flight crewmember on an aeroplane engaged in international commercial air transport operations unless the other pilot is less than age 60.

**8.10.2 USE OF FLIGHT SIMULATION TRAINING DEVICES**

- (1) Each flight simulation training device that is used for flight crewmember qualification shall—
  - (a) Be specifically approved by the Authority for—
    - (i) The AOC holder;
    - (ii) The aircraft type, including type variations, for which the training or check is being conducted; and

- (iii) The particular manoeuvre, procedure, or crewmember function involved.
  - (b) Maintain the performance, functional, and other characteristics that are required for approval.
  - (c) Be modified to conform with any modification to the aeroplane being simulated that results in changes to performance, functional, or other characteristics required for approval.
  - (d) Be given a daily functional pre-flight check before use.
  - (e) Have a daily discrepancy log completed by the appropriate instructor or check pilot at the end of each training or check flight.
- (2) The simulation device shall have the same technology for the basic flight instruments (attitude indicator, airspeed, altimeter, heading reference) as those of the aircraft used by the operator.
  - (3) Operators that have electronic or glass displays shall use simulators that have electronic or glass displays.
  - (4) Operators that have standard instruments shall use simulators that have standard instruments.

#### **8.10.3 APPROVAL OF A FLIGHT SIMULATION TRAINING DEVICE FOR CREDIT IN TRAINING AND CHECKING**

- (1) No AOC holder may use a flight simulation training device for training or checking unless that simulator has been specifically approved for the AOC holder in writing by the Authority.
- (2) No AOC holder may use a simulator for credit in training, recency and checking other than that specified in the Authority's approval.

#### **8.10.4 LICENCE REQUIREMENTS FOR PIC**

- (1) No pilot may act as PIC of an aircraft, certificated for operation with more than one pilot, in commercial air transportation operations unless he holds an Airline Transport Pilot Licence with applicable category, class and type rating for that aircraft.
- (2) No pilot may act as PIC of an aircraft, certificated for operation for one pilot, in commercial air transportation operations unless he holds a Commercial Pilot Licence or an Airline Transport Pilot Licence with applicable category, class and type rating for that aircraft.
- (3) If instrument privileges are to be exercised, the PIC shall hold an Instrument Rating.

**8.10.5 LICENCE REQUIREMENTS FOR CO-PILOT AND CRUISE RELIEF PILOT**

- (1) No pilot may act as co-pilot of an aircraft in commercial air transport operations unless he holds either a Commercial Pilot Licence with Instrument Rating or an Airline Transport Pilot Licence, each with category, class and type ratings, as applicable, for the aircraft operated.
- (2) No pilot may act as a cruise relief pilot in commercial air transport operations unless he holds an Airline Transport Pilot Licence with category, and if applicable, class and type ratings, and has completed all training to serve as PIC with the exception of initial operating experience.

**8.10.6 FLIGHT ENGINEER LICENSE REQUIREMENTS**

No person may act as the flight engineer of an aircraft unless he or she holds a flight engineer license with the appropriate class rating.

**8.10.7 ONE PILOT QUALIFIED TO PERFORM FLIGHT ENGINEER FUNCTIONS**

The AOC holder shall ensure that, on all flights requiring a flight engineer, there is assigned at least one other flight crewmember qualified to perform the flight engineer duties in the event the flight engineer becomes incapacitated.

**8.10.8 PERSONS QUALIFIED TO FLIGHT RELEASE**

- (1) No person may act as a flight operations officer in releasing a scheduled passenger-carrying commercial air transport operation unless that person-
  - (a) Holds a flight operations officer or flight dispatcher licence or an ATP license; and
  - (b) Is currently qualified with the AOC holder for the operation and type of aircraft used or
  - (c) Has completed an AOC holders approved programme that meets the requirements as specified in Part 2 of these Flight Standards Directives for the flight operations officer or flight dispatcher.
- (2) A flight operations officer or flight dispatcher shall not be assigned to duty unless that person has:
  - (a) satisfactorily completed an operator-specific training course that addresses all the specific components of its approved method of control and supervision of flight operations specified in 9.3.23.

*Note: Guidance on the composition of such training syllabi is provided in the Training Manual (Doc 7192), Part D-3 - Flight Operations Officers or Flight Dispatchers.*



- (b) made, within the preceding 12 months, at least a one-way qualification flight in the flight crew compartment of an aeroplane over any area for which that individual is authorized to exercise flight supervision. The flight should include landings at as many aerodromes as practicable;

*Note: For the purpose of the qualification flight, the flight operations officer/flight dispatcher must be able to monitor the flight crew intercommunication system and radio communications and be able to observe the actions of the flight crew.*

- (c) demonstrated to the operator a knowledge of
- (i) the contents of the operations manual described in 9.3.2;
  - (ii) the radio equipment in the aeroplanes used; and
  - (iii) the navigation equipment in the aeroplanes used;
- (d) demonstrated to the operator a knowledge of the following details concerning operations for which the officer is responsible and areas in which that individual is authorized to exercise flight supervision:
- (i) the seasonal meteorological conditions and the sources of meteorological information;
  - (ii) the effects of meteorological conditions on radio reception in the aeroplanes used;
  - (iii) the peculiarities and limitations of each navigation system which is used by the operation; and
  - (iv) the aeroplane loading instructions;
- (e) demonstrated to the operator knowledge and skills related to human performance relevant to dispatch duties; and
- (f) demonstrated to the operator the ability to perform the duties specified in 8.13.4.

(3) A flight operations officer or flight dispatcher shall not be assigned to duty after 12 consecutive months of absence from such duty, unless the provisions of 8.10.24 are met.

(4) A flight operations officer or flight dispatcher assigned to duty shall maintain complete familiarization with all features of the operation which are pertinent to such duties, including knowledge and skills related to human performance.

**Note.**— *Guidance material to design training programmes to develop knowledge and skills in human performance can be found in the Cabin Crew Safety Training Manual (Doc 10002)*

**Note:** *See 8.13 for flight release – commercial air transport.*

**8.10.9 COMPANY PROCEDURES INDOCTRINATION**

- (1) No person may serve nor may any AOC holder use a person as a crewmember or flight operations officer or flight dispatcher unless that person has completed the company procedures indoctrination curriculum approved by the Authority, which shall include a complete review of the applicable Directives and Operations Manual procedures pertinent to the crewmember or flight operations officer's duties and responsibilities.
- (2) The AOC holder shall provide a minimum of 40 programmed hours of instruction for company procedures indoctrination training unless a reduction is determined appropriate by the Authority.
- (3) The knowledge area topics to be covered are contained in IS: 8.10.9.

**8.10.10 INITIAL DANGEROUS GOODS TRAINING**

No person may serve nor may any AOC holder use operational personnel unless he has completed the appropriate initial dangerous goods curriculum approved by the Authority.

*Note: Specific course curriculum requirements are contained in IS: 8.10.10.*

**8.10.11 INITIAL SECURITY TRAINING**

No person may serve nor may any AOC holder use operational personnel unless he or she has completed the initial security curriculum approved by the Authority.

**8.10.12 INITIAL CREW RESOURCE MANAGEMENT**

No person may serve nor may any AOC holder use a person as a flight operations officer or crew member unless that person has completed the initial CRM curriculum approved by the Authority.

*Note- Course curriculum topics are contained in IS: 8.10.12.*

**8.10.13 INITIAL EMERGENCY EQUIPMENT DRILLS**

No person may serve nor may any AOC holder use a person as a crew member unless that person has completed the appropriate initial emergency equipment curriculum and drills for the crew member position approved by the Authority for the emergency equipment available on the aircraft to be operated.

*Note-Course curriculum requirements are contained in IS: 8.10.13.*

**8.10.14 INITIAL AIRCRAFT GROUND TRAINING**

- (1) No person may serve nor may any AOC holder use a person as a crew member or flight operations officer unless he or she has completed the initial ground training approved by the Authority for the aircraft type.
- (2) Initial aircraft ground training for flight crew members shall include the pertinent portions of the operations manuals relating to aircraft-specific performance, mass and balance, operational policies, systems limitations, normal, abnormal and emergency procedures on the aircraft type to be used.

**Note 1-** Specific course curriculum requirements for flight crewmembers are contained in IS: 8.10.14(2).

**Note 2-** The AOC holder may have separate initial aircraft ground training curricula of varying lengths and subject emphasis which recognise the experience levels of flight crew members approved by the Authority.

- (3) For cabin crew, initial aircraft ground training shall include the pertinent portions of the operations manuals relating to aircraft-specific configuration, equipment, normal and emergency procedures for the aircraft types within the fleet.

**Note-** Specific course curriculum requirements for cabin crewmembers are contained in IS: 8.10.14 (3).

- (4) For flight operations officers, aircraft initial ground training shall include the pertinent portions of the operations manuals relating to aircraft-specific flight preparation and monitoring procedures, performance, mass and balance, systems, limitations for the aircraft types within the fleet MEL, CDL, Navigation.

**Note-** Specific course curriculum requirements for flight operations officers are contained in IS: 8.10.14(4).

**8.10.15 INITIAL AIRCRAFT FLIGHT TRAINING**

- (1) No person may serve nor may any AOC holder use a person as a flight crewmember unless he or she has completed the initial flight training approved by the Authority for the aircraft type.
- (2) Initial flight training shall focus on the manoeuvring and safe operation of the aircraft in accordance with AOC holder's normal, abnormal and emergency procedures.
- (3) An AOC holder may have separate initial flight training curriculum, which recognise the experience levels of flight crewmembers approved by the Authority.

**Note-** Specific flight training curriculum requirements are contained in IS: 8.10.15(1)(d) for pilots, IS: 8.10.15(2)(d) for flight engineers and IS: 8.10.15(3) for navigators.

**8.10.16 INITIAL SPECIALISED OPERATIONS TRAINING**

- (1) No person may serve nor may any AOC holder use a person as a flight crew member unless he has completed the appropriate initial specialised operations training curriculum approved by the Authority.
- (2) Specialised operations for which initial training curricula shall be developed include-
  - (i) Low minimums operations, including low visibility take-offs and Category II and III operations;
  - (ii) Extended range operations;
  - (iii) Specialised navigation;
  - (iv) PIC right seat qualification;
  - (v) RVSM;
  - (vi) RNP;
  - (vii) PBN; and
  - (viii) ACAS I/II/III, INS, LORAN, GPS, GPWS, ACAS, CFIT, MNPS, NPAC.

**Note-** Specific initial specialised operations training curriculum requirements are contained in IS: 8.10.16.

**8.10.17 AIRCRAFT DIFFERENCES**

No person may serve nor may any AOC holder use a person as a flight operations officer or crew member on an aircraft of a type for which a differences curriculum is included in the AOC holder's approved training program, unless that person has satisfactorily completed that curriculum, with respect to both the crew member position and the particular variant of that aircraft.

**Note-** A general listing of subjects to be covered in aircraft differences training is contained in IS: 8.10.17.

**8.10.18 INTRODUCTION OF NEW EQUIPMENT AND PROCEDURES**

No person may serve nor may any AOC holder use a person as a flight crewmember when that service would require expertise in the use of new equipment or procedures for which a curriculum is included in the AOC holder's approved training programme, unless that person has satisfactorily completed that curriculum, with respect to both the crewmember position and the particular variant of that aircraft.

**8.10.19 PILOT PROFICIENCY - AIRCRAFT AND INSTRUMENT PROFICIENCY CHECKS**

- (1) No person may serve nor may any AOC holder use a person as a pilot flight crewmember unless, since the beginning of the 12th calendar month before that service, that person has passed the aircraft pilot proficiency check prescribed by the Authority in the make and model of the aircraft on which their services are required.
- (2) No person may serve nor may any AOC holder use a person as a pilot in IFR operations unless, since the beginning of the 6th calendar month before that service, that pilot has passed the instrument proficiency check prescribed by the Authority.
- (3) When an operator schedules flight crew on several variants of the same type of aircraft or different types of aircraft with similar characteristics in terms of operating procedures, systems and handling, the provisions of IS: 8.10.19 shall be used in determining the types of aircraft that may be combined for the purposes of (1) above.
- (4) The Authority shall prescribe requirements of experience, recency and training applicable to single pilot operations intended to be carried out under the IFR or at night.
- (5) The pilot-in-command should:
  - (a) for operations under the IFR or at night, have accumulated at least 50 hours flight time on the class of aircraft, of which at least 10 hours shall be as pilot-in-command;
  - (b) for operations under the IFR, have accumulated at least 25 hours flight time under the IFR on the class of aircraft, which may form part of the 50 hours flight time in sub-paragraph (a);
  - (c) for operations at night, have accumulated at least 15 hours flight time at night, which may form part of the 50 hours flight time in Sub-paragraph (a);
  - (d) for operations under the IFR, have acquired recent experience as a pilot engaged in a single pilot operation under the IFR of:
    - (i) at least five IFR flights, including three instrument approaches carried out during the preceding 90 days on the class of aircraft in the single pilot role; or
    - (ii) an IFR instrument approach check carried out on such an aircraft during the preceding 90 days;

- (iii) for operations at night, have made at least three take-offs and landings at night on the class of aircraft in the single pilot role in the preceding 90 days; and
  - (iv) have successfully completed training programmes that include, in addition to the requirements of Flight Crew Member Training Programmes in these Flight Standards Directives, passenger briefing with respect to emergency evacuation, autopilot management, and the use of simplified in-flight documentation.
- (6) The initial and recurrent flight training and proficiency checks indicated in the Flight Crew Member Training Programmes in these Directives and Pilot Proficiency Checks shall be performed by the pilot-in-command in the single pilot role on the class of aircraft in an environment representative of the operation.
- (7) A pilot may complete the requirements of paragraphs (1) and (2) in a specific aircraft type or an approved flight simulator.

*Note- The manoeuvres for aircraft pilot proficiency and instrument proficiency checks conducted under Part 8 are contained in IS 8.10.19 and in Part 2 of these Flight Standards Directives under the appropriate skill test.*

#### **8.10.20 RE-ESTABLISHING REGENCY OF EXPERIENCE: FLIGHTCREW**

- (1) **Pilots:**
- (a) In addition to meeting all applicable training and checking requirements, a required pilot flight crewmember who, in the preceding 90 days has not made at least three take-offs and landings in the aircraft in which that person is to serve, shall, under the supervision of a check pilot, re-establish recency of experience as follows:
    - (i) Make at least three take-offs and landings in the aircraft in which that person is to serve or in a qualified simulator.
    - (ii) Make at least one take-off with a simulated failure of the most critical powerplant, one landing from the minimum ILS authorised for the AOC holder, and one landing to a full stop.
  - (b) When using a simulator to accomplish any of the take-off and landing training requirements necessary to re-establish recency of experience, each required flight crewmember position shall be occupied by an appropriately qualified person and the simulator shall be operated as if in a normal in-flight environment without use of the repositioning features of the simulator.
  - (c) A check pilot who observes the take-offs and landings of a pilot flight crewmember shall certify that the person being observed is proficient and qualified to perform flight duty in operations and may require any additional manoeuvres that are determined necessary to make this certifying statement.

- (2) **Flight Engineer:** A flight engineer who in the preceding 6 months has not flown 50 hours flight time with an AOC holder as flight engineer in the appropriate class of aeroplane shall re-establish recency by taking the proficiency check specified in Subsection 8.10.22.
- (3) **Flight Navigator:** A flight navigator who in the preceding 6 months has not flown 50 hours flight time with an AOC holder as flight navigator in the appropriate class of aircraft shall re-establish recency by taking the proficiency check specified in Subsection 8.10.22.

#### **8.10.21 PAIRING OF LOW EXPERIENCE PILOTS**

- (1) If a CP has fewer than 100 hours of flight time in the type of aircraft being flown in commercial air transport, and the PIC is not an appropriately qualified check pilot, the PIC shall make all take-offs and landings in situations designated as critical by the Authority in IS: 8.10.21.
- (2) No PIC or CP may conduct operations for a type of aircraft in commercial air transport unless either pilot has at least 75 hours of line operating flight time, either as PIC or Co-Pilot.
- (3) The Authority may, upon application by the AOC holder, authorise exemptions from paragraph (2) by an appropriate amendment to the operations specifications in any of the circumstances identified in IS: 8.10.21.

#### **8.10.22 FLIGHT ENGINEER AND FLIGHT NAVIGATOR PROFICIENCY CHECKS**

No person may serve nor may any AOC holder use a person as a flight engineer or a flight navigator on an aeroplane unless within the preceding 6 calendar months he has had a proficiency check in accordance with the requirements prescribed by the Authority in IS 8.10.22.

#### **8.10.23 COMPETENCY CHECKS: CABIN CREW**

No person may serve nor may any AOC holder use a person as a cabin crewmember unless since the beginning of the 12<sup>th</sup> calendar month before that service, that person has passed the competency check prescribed by the Authority in IS 8.10.23 performing the emergency duties appropriate to that person's assignment.

#### **8.10.24 COMPETENCY CHECKS: FLIGHT OPERATIONS OFFICERS OR FLIGHT DISPATCHER**

No person may serve nor may any AOC holder use a person as a flight operations officer or flight dispatcher unless, since the beginning of the 12<sup>th</sup> calendar month before that service, that person has passed the competency check, prescribed by

the Authority in IS 8.10.24, performing the flight preparation and subsequent duties appropriate to that person's assignment.

#### **8.10.25 SUPERVISED LINE FLYING: PILOT**

- (1) Each pilot initially qualifying as PIC shall complete a minimum of 10 flights performing the duties of a PIC under the supervision of a check pilot.
- (2) Each PIC transitioning to a new aircraft type shall complete a minimum of 5 flights performing the duties of a PIC under the supervision of a check pilot.
- (3) Each pilot qualifying for duties other than PIC shall complete a minimum of 5 flights performing those duties under the supervision of a check pilot.
- (4) During the time that a qualifying PIC is acquiring operating experience, a check pilot who is also serving as the PIC shall occupy a pilot station.
- (5) In the case of transitioning PIC, the check pilot serving as PIC may occupy the observer's seat if the transitioning pilot has made at least two take-offs and landings in the type aircraft used and has satisfactorily demonstrated to the check pilot that he is qualified to perform the duties of a PIC for that type of aircraft.

#### **8.10.26 SUPERVISED LINE FLYING: FLIGHT ENGINEERS**

Each person qualifying as a flight engineer for each aircraft class -- piston-engined; turbo propeller powered, or turbojet powered --shall perform those functions for a minimum of 5 flights under the supervision of a check flight engineer approved by the Authority.

#### **8.10.27 SUPERVISED LINE EXPERIENCE: CABIN CREWMEMBERS**

Each person qualifying as a cabin crewmember shall perform those functions on the following aircraft under the supervision of a check cabin crewmember before qualifying as a required crewmember:

- (a) Piston-engined or turbopropeller powered aircraft—for a minimum of 2 flights that must include at least 5 hours flown.
- (b) Turbojet powered aircraft—for a minimum of 2 flights

#### **8.10.28 LINE OBSERVATIONS: FLIGHT OPERATIONS OFFICERS**

No person may serve nor may any AOC holder use a person as a flight operations officer unless, since the beginning of the 12th calendar month before that service,



that person has observed, on the flight deck, the conduct of two complete flights, over routes representative of those for which that person is assigned duties.

#### **8.10.29 LINE (ROUTE AND AREA CHECKS): PILOT QUALIFICATION**

- (1) No person may serve nor may any AOC holder use a person as a pilot unless, within the preceding 12 calendar months, that person has passed a route check in which he or she satisfactorily performed their assigned duties in one of the types of aircraft they are to fly.

**Note:** The terms “line check” and “route and area check” are synonymous.

- (2) No person may perform PIC duties over a designated special operational area that requires a special navigation system or procedures or in EDTO operations unless their competency with the system and procedures has been demonstrated to the AOC holder within the past 12 calendar months.
- (3) Each PIC shall demonstrate operational competency by navigation over the route and area to be flown and the aerodromes to be used as PIC under the supervision of a check pilot and, on a continuing basis, by flights performing PIC duties. This, at a minimum, shall include a PIC demonstration of knowledge in the following:
  - (a) The terrain and minimum safe altitudes.
  - (b) The seasonal meteorological conditions.
  - (c) The search and rescue procedures.
  - (d) The navigational facilities and procedures, including any long-range navigation procedures, associated with the route along which the flight is to take place.
  - (e) Procedures applicable to—
    - (i) Flight paths over heavily populated areas or high air traffic density;
    - (ii) Obstructions;
    - (iii) Physical layout;
    - (iv) Lighting, approach aids;
    - (v) Arrival, departure, holding and instrument approach procedures; and
    - (vi) Applicable operating minima.
- (4) The operator shall maintain a record, sufficient to satisfy the Authority of the qualification of the pilot and of the manner in which such qualification has been achieved.

- (5) A pilot-in-command shall have made an actual approach into each aerodrome or heliport of landing on the route, accompanied by a pilot who is qualified for the aerodrome or heliport, as a member of the flight crew or as an observer on the flight deck, unless:
- (a) the approach to the aerodrome or heliport is not over difficult terrain and the instrument approach procedures and aids available are similar to those with which the pilot is familiar, and a margin to be approved by the Authority is added to the normal operating minima, or there is reasonable certainty that approach, and landing can be made in visual meteorological conditions; or
  - (b) the descent from the initial approach altitude can be made by day in visual meteorological conditions; or
  - (c) the operator qualifies the pilot-in-command to land at the aerodrome or heliport concerned by means of an adequate pictorial presentation; or
  - (d) the aerodrome or heliport concerned is adjacent to another aerodrome or heliport at which the pilot-in-command is currently qualified to land.
- (6) In the event that more than 12 months elapse in which a pilot-in-command has not made such a trip on a route in close proximity and over similar terrain, within such a specified area, route or aerodrome/heliport, and has not practiced such procedures in a training device which is adequate for this purpose, prior to again serving as a pilot-in-command within that area or on that route, that pilot must re-qualify in accordance with IS:8.10.29.

*Implementing Standard: See I.S: 8.10.29 for pilot qualification requirements.*

#### **8.10.30 PIC LOW MINIMUMS AUTHORISATION**

- (3) Until a PIC has 15 flights performing PIC duties in the aircraft type (which included 5 approaches to landing using Category I or II procedures), he or she may not plan for or initiate an instrument approach when the ceiling is less than 300 feet and the visibility less than 1 mile (1.6 km).
- (4) Until a PIC has 20 flights performing PIC duties in the aircraft type (which included 5 approaches and landings using Category III procedures), he or she may not plan for or initiate an approach when the ceiling is less than 100 feet, or the visibility is less than 1200 RVR.

#### **8.10.31 DESIGNATED SPECIAL AERODROMES AND HELIPORTS: PIC QUALIFICATION**

- (1) The Authority may determine that certain aerodromes, due to items such as surrounding terrain, obstructions, or complex approach or departure procedures, are special aerodromes requiring special aerodrome qualifications

and that certain areas or routes, or both, require a special type of navigation qualifications.

- (2) No person may serve nor may any AOC holder use a person as PIC for operations at designated special aerodromes and heliports unless within the preceding 12 calendar-months unless
  - (a) The PIC has been qualified by the AOC holder through a pictorial means acceptable to the Authority for that aerodrome; or
  - (b) The PIC or the assigned CP has made a take-off and landing at that aerodrome while serving as a flight crewmember for the AOC holder.
- (3) If the 12 months qualification period required in (2) above has expired, the PIC must re-qualify in accordance with the requirements in item (2).
- (4) Designated special aerodrome and heliport limitations are not applicable if the operation will occur—
  - (a) During daylight hours;
  - (b) When the visibility is at least 5 km (3 miles); and
  - (c) When the ceiling at that aerodrome is at least 300 m (1000 ft.) above the lowest initial approach altitude prescribed for an instrument approach procedure.

#### **8.10.32 RECURRENT TRAINING: FLIGHT CREW MEMBERS**

- (1) No person may serve nor may any AOC holder use a person as a flight crew member unless within the preceding 12 calendar months that person has completed the recurrent ground and flight training curricula approved by the Authority.
- (2) The recurrent ground training shall include training on-
  - (a) Aircraft systems and limitations and normal, abnormal and emergency procedures;
  - (b) Emergency equipment and drills;
  - (c) Crew resource management (human performance);
  - (d) Recognition or transportation of dangerous goods; and
  - (e) Security training.
- (3) The recurrent flight training curriculum shall include-

- (a) Manoeuvring and safe operation of the aircraft in accordance with the AOC holder's normal, abnormal and emergency procedures;
  - (b) Manoeuvres and procedures necessary for avoidance of in-flight hazards; and
  - (c) For authorized pilots, at least one low visibility take-off to the lowest applicable minimum LVTO and two approaches to the lowest approved minimums for the AOC holder, one of which is to be a missed approach.
- (4) Satisfactory completion of a proficiency check with the AOC holder for the type aircraft and operation to be conducted may be used in lieu of recurrent flight training.

*Note- Detailed recurrent training requirements for pilots, flight engineers and flight navigators are contained in IS: 8.10.32.*

#### **8.10.33 RECURRENT TRAINING AND RE-ESTABLISHMENT OF QUALIFICATIONS: CABIN CREWMEMBERS**

- (1) No person may serve nor may any AOC holder use a person as a cabin crewmember unless within the preceding 12 calendar months that person has completed the recurrent ground curricula approved by the Authority relevant to the type(s) and or variant(s) of aircraft and operations to which he is assigned.
- (2) The recurrent ground training shall include training on-
  - (a) Aircraft-specific configuration, equipment and procedures;
  - (b) Emergency and first aid equipment and drills;
  - (c) Crew resource management (human performance);
  - (d) Recognition or transportation of dangerous goods; and
  - (e) Security training.
- (3) Specific normal and emergency programme training requirements for cabin crewmembers are contained in IS: 8.10.33.
- (4) A required cabin crewmember who, due to a period of:
  - (a) 13 to 24 months inactivity, has not met the recurrent training requirements in paragraphs (1) through (3) shall complete the Requalification training and Annual training.

- (b) 24 to 36 months inactivity, has not met the recurrent training requirements in paragraphs (1) through (3) shall complete the Requalification training, Annual training and Line Indoctrination.
- (c) more than 36 months of inactivity, since the last required annual training with the Air Operator, shall complete initial training and line indoctrination.

#### **8.10.34 RECURRENT TRAINING AND RE-ESTABLISHMENT OF QUALIFICATION: FLIGHT OPERATIONS OFFICERS**

- (1) No person may serve nor may any AOC holder use a person as a flight operations officer unless within the preceding 12 calendar months that person has completed the recurrent ground curricula approved by the Authority relevant to the type(s) and or variant(s) of aircraft and positions to which he is assigned.

*Note- Specific requirements for flight operations officers recurrent training are contained in IS: 8.10.34.*

- (2) A required flight operations officer who, due to a period of inactivity, has not met the recurrent training requirements in paragraph (1) shall complete the initial AOC training programme and competency check specified in subpart 8.10.24.

#### **8.10.35 INSTRUCTOR QUALIFICATIONS – FLIGHT CREW, CABIN CREW, FLIGHT OPERATIONS OFFICER**

- (1) **Flight Crew.** No AOC holder may use a person, nor may any person serve as a flight instructor in an established flight training programme unless, with respect to the aircraft type involved, that person—
  - (a) Holds the personnel licences and ratings required to serve as a PIC, a flight engineer, or a flight navigator, as applicable;
  - (b) Has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training and differences training, that are required to serve as a PIC, flight engineer, or flight navigator, as applicable;
  - (c) Has satisfactorily completed the appropriate proficiency, competency and recency of experience checks that are required to serve as a PIC, flight engineer, or flight navigator, as applicable;
  - (d) Has satisfactorily completed the applicable initial or transitional training requirements and the Authority-observed in-flight competency check; and
  - (e) Holds the appropriate medical certificate for service as a required crewmember.

- (2) **Flight Instructor - Flight Simulation Training.** No person may serve nor may any AOC holder use a person as a Flight Instructor in a flight simulation training device, unless, since the beginning of the 12th calendar month before that service, that person has—
- (a) Flown at least 5 flights as a required crewmember for the type of aircraft involved; or
  - (b) Observed, on the flight deck, the conduct of 2 complete flights in the aircraft type to which the person is assigned.
- (3) **Cabin Crew.** No AOC holder may use a person, nor may any person serve as an instructor in an established cabin crew training programme unless, with respect to the aircraft type or position involved, that person—
- (a) Holds the qualification required to serve as a cabin crewmember;
  - (b) Has satisfactorily completed the appropriate training phases for the aircraft and position involved, including recurrent training, refresher training and differences training, that are required to serve as a cabin crewmember;
  - (c) Has satisfactorily completed the appropriate competency and recency of experience checks that are required to serve as a cabin crewmember;
  - (d) Has satisfactorily completed the applicable initial or transitional training requirements and the Authority-observed competency check;
  - (e) Holds the appropriate medical certificate for service as a required cabin crewmember.
- (4) **Flight Operations Officer.** No AOC holder may use a person, nor may any person serve as an instructor in an established flight operations officer training programme unless, with respect to the aircraft type and position involved, that person:
- (a) Holds the licence required to serve as a flight operations officer;
  - (b) Has satisfactorily completed the appropriate training phases for the aircraft or position involved, including recurrent training and differences training, that are required to serve as a flight operations officer;
  - (c) Has satisfactorily completed the appropriate competency and recency of experience checks that are required to serve as a flight operations officer; and
  - (d) Has satisfactorily completed the applicable initial or transitional training requirements and the Authority-observed competency check.

**8.10.36 INSTRUCTOR TRAINING**

No person may serve nor may any AOC holder use a person as an instructor for flight crew, cabin crew or flight operations officers, unless he has completed the curricula approved by the Authority for those functions for which they are to serve.

*Note- Specific training programme requirements for flight crew instructors are contained in IS: 8.10.36.*

**8.10.37 PERSONNEL APPROVED TO CONDUCT CHECKS**

- (1) The Authority may approve the following AOC holder personnel to conduct checks when such personnel meet the requirements for the authorised responsibilities, and may be approved for either aircraft or simulator, or both, as applicable, for checking of flight crew:
  - (a) Check pilot.
  - (b) Check flight engineer.
  - (c) Check flight navigator.
  - (d) Check cabin crewmember; and.
  - (e) Check flight operations officer.
- (2) The authorized duties of check personnel are to—
  - (a) Conduct initial and recurrent proficiency checks for flight crew and competency checks for cabin crew and flight operations officers,
  - (b) Certify as satisfactory, the knowledge and proficiency of the flight crew, and the knowledge and competency of the cabin crew and flight operations officers; and
  - (c) For all check personnel, supervise operating experience (OE).
- (3) No person may serve nor may any AOC holder use a person as a check personnel under the AOC holder's crewmember checking and standardisation programme in Part 9 of these Flight Standards Directives unless that person has:
  - (a) been identified by name and function and approved in writing by the Authority; and
  - (b) successfully completed the AOC holder's curricula approved by the Authority for those functions for which he or she is to serve.
- (4) Once approved, no person may serve nor may any AOC holder use a person as a check personnel for any flight crew, cabin crew or flight operations officer checks

unless that person has demonstrated, initially and at least biennially to an inspector of the Authority, the ability to conduct a check for which he is approved.

### 8.10.38 CHECK PERSONNEL QUALIFICATIONS

#### (1) Check personnel for flight crew.

- (a) No AOC holder may use a person, nor may any person serve as a check personnel in an established flight crew training programme unless, with respect to the aircraft type involved, that person—
  - (i) Holds the personnel licences and ratings required to serve as a PIC, a flight engineer, or a flight navigator, as applicable;
  - (ii) Has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training and differences training, that are required to serve as a PIC, flight engineer, or flight navigator, as applicable;
  - (iii) Has satisfactorily completed the appropriate proficiency, competency and recency of experience checks that are required to serve as a PIC, flight engineer, or flight navigator, as applicable;
  - (iv) Has satisfactorily completed the applicable initial or transitional training requirements and the Authority-observed in-flight competency check for check personnel duties;
  - (v) Holds the appropriate medical certificate if serving as a required flight crewmember; and
  - (vi) Has been approved by the Authority for the check personnel duties involved

#### (2) Check Personnel - Simulator.

**Additional requirements.** No person may serve nor may any AOC holder use a person as a check personnel in a flight simulation training device, unless, since the beginning of the 12th calendar month before that service, that person has—

- (a) Flown at least 5 flights as a required crewmember for the type of aircraft involved; or
- (b) Observed, on the flight deck, the conduct of 2 complete flights in the aircraft type to which the person is assigned.

#### (3) Check Personnel for Cabin Crew.



No AOC holder may use a person, nor may any person serve as a check cabin crewmember in an established cabin crew training programme unless, with respect to the aircraft type or position involved, that person—

- (a) Holds the qualifications required to serve as a cabin crewmember;
- (b) Has acted at least 5 years as SCCM for the type of aircraft involved; or
- (c) Has satisfactorily completed the appropriate training phases for the aircraft type including recurrent training required to serve as a check cabin crew;
- (d) Has satisfactorily completed the appropriate competency and on-board experience check observed by the Authority;
- (e) Holds a valid cabin crew medical certificate; and
- (f) Has been approved by the Authority for the check cabin crewmember duties involved.

(4) **Check Personnel for Flight Operations Officers.**

No AOC holder may use a person, nor may any person serve as a check flight operations officer in an established flight operations officer training programme unless, with respect to the aircraft type or position involved, that person—

- (a) Holds the licence required to serve as a flight operations officer;
- (b) Has satisfactorily completed the appropriate training phases for the aircraft and or position, including recurrent training and differences training, that are required to serve as a flight operations officer;
- (c) Has satisfactorily completed the appropriate competency and recency of experience checks that are required to serve as a flight operations officer;
- (d) Has satisfactorily completed the applicable initial or transitional training requirements and the Authority-observed competency check for the check flight operations officer duties involved.
- (e) Has been approved by the Authority for the check flight operations officer duties involved.

**8.10.39 CHECK PERSONNEL TRAINING**

No person may serve nor may any AOC holder use a person for checks unless he has completed the curricula approved by the Authority for those functions for which they are to serve.

**Note-** *Specific training programme requirements for check personnel are contained in IS: 8.10.39.*

**8.10.40 MONITORING OF TRAINING AND CHECKING ACTIVITIES**

- (1) To enable adequate supervision of its training and checking activities, the AOC holder shall forward to the Authority at least 7 days before the scheduled activity the dates, report times and report location of all—
  - (a) Training for which a curriculum is approved in the AOC holder's training programme; and
  - (b) Proficiency, competency and line checks.
- (2) Failure to provide the information required by paragraph (1) may invalidate the training or check and the Authority may require that it be repeated for observation purposes.

**8.10.41 TERMINATION OF A PROFICIENCY, COMPETENCY OR LINE CHECK**

Where it is necessary to terminate a check for any reason, the AOC holder may not use the crewmember or flight operations officer in commercial air transport operations until the completion of a satisfactory recheck.

**8.10.42 RECORDING OF CREWMEMBER AND FLIGHT OPERATIONS OFFICER QUALIFICATION**

- (1) The AOC holder shall record in its records maintained for each crewmember and flight operations officer, the completion of each of the qualifications required by this Part.
- (2) A crewmember or flight operations officer may complete the curricula required by this Part concurrently or intermixed with other required curricula, but completion of each of these curricula shall be recorded separately.

**8.10.43 ELIGIBILITY PERIOD**

- (1) Crewmembers required to take a proficiency check, test or competency check, or recurrent training to maintain qualification for commercial air transport operations may complete those requirements at any time during the eligibility period.
- (2) The eligibility period is defined as the three-calendar month period including the month-prior, the month-due and the month-after any due date specified by this subsection.
- (3) Completion of the requirement at any time during the period shall be considered as completion in the month-due for calculation of the next due date.

**8.10.44 REDUCTIONS IN REQUIREMENTS**

- (1) The Authority may authorise reductions in, or waive, certain portions of the training requirements of this subpart, taking into account the previous experience of the crew members.
- (2) Any AOC holder request for reduction or waiver shall be made in writing and outline the basis under which the request is made.
- (3) If the request was for a specific crew member, the correspondence from the Authority authorizing the reduction and the basis for it shall be filed in the record the AOC holder maintains for that crew member.
- (4) If approved by the Authority, a person need not complete the programmed hours of flight training for the particular aircraft if he:
  - (a) progresses successfully through flight training
  - (b) is recommended by their instructor, and
  - (c) successfully completes the appropriate flight check with a check person.
- (5) If approved by the Authority, a person need not complete the programmed hours of cabin crew or flight operations officer training if he:
  - (a) progresses successfully through cabin crew or flight operations officer training,
  - (b) is recommended by their instructor, and
  - (c) successfully completes the appropriate competency check with a check person.
- (6) Whenever the Authority finds that 20 percent of the flight checks given at a particular training base during the previous 6 months are unsuccessful, the method of approval will not be used by the AOC holder at that base until the Authority finds that the effectiveness of the flight training there has improved.

**8.10.45 RECORDS OF COSMIC RADIATION**

For each flight of an aeroplane above 49000 ft., each AOC holder shall maintain records so that the total cosmic radiation dose received by each crewmember over a period of 12 consecutive months can be determined.

## **8.11 FATIGUE MANAGEMENT**

### **8.11.1 APPLICABILITY**

This section is applicable to the management of fatigue-related safety risks of crewmembers and flight operations officers or flight dispatchers engaged in commercial air transport flight operations.

### **8.11.2 MANAGING FATIGUE-RELATED SAFETY RISKS**

- (1) For the purpose of managing fatigue-related safety risks, an AOC holder shall establish either:
  - (a) flight time, flight duty period, duty period and rest period limitations that are within the prescriptive fatigue management Directives in 8.11;
  - (b) as specified in the Authority’s Fatigue Risk Management Manual or Advisory Circulars; or
  - (c) a Fatigue Risk Management System (FRMS) in compliance with 8.11.2(5); or
  - (d) an FRMS in compliance with 8.11.2(5) for part of its operations and the requirements of 8.12 for the remainder of its operations.
- (2) Where the operator adopts prescriptive fatigue management Directives for part or all of its operations, the Authority may approve, in exceptional circumstances, variations to these Directives on the basis of a risk assessment provided by the operator. Approved variations shall provide a level of safety equivalent to, or better than that achieved through the prescriptive fatigue management Directives.
- (3) The Authority shall approve an operator’s FRMS before it may take the place of any or all of the prescriptive fatigue management directives. An approved FRMS shall provide a level of safety equivalent to, or better than, the prescriptive fatigue management directives.
- (4) Operators using an FRMS must adhere to the following provisions of the FRMS approval process that allows the Authority to ensure that the approved FRMS meets the requirements of 8.11.2(3):
  - (a) Establish maximum values for flight times and/or flight duty period(s) and duty period(s), and minimum values for rest periods that shall be based upon scientific principles and knowledge, subject to safety assurance processes. (note: defined in Fatigue Risk Management Systems Manual Document 9966)

- (b) Adhere to the Authority’s mandates to decrease maximum values and increase minimum values in the event that the operator’s data indicates these values are too high or too low, respectively; and
  - (c) Provide justification to the Authority for any increase in maximum values or decrease in minimum values based on accumulated FRMS experience and fatigue-related data before such changes will be approved by the Authority.
- (5) Operators implementing an FRMS to manage fatigue-related safety risks shall, as a minimum:
- (a) Incorporate scientific principles and knowledge within the FRMS;
  - (b) Identify fatigue-related safety hazards and the resulting risks on an ongoing basis;
  - (c) Ensure that the remedial actions, necessary to effectively mitigate the risks associated with the hazards, are implemented promptly;
  - (d) Provide for continuous monitoring and regular assessment of the mitigation of fatigue risks achieved by such actions; and
  - (e) Provide for continuous improvement to the overall performance of the FRMS.
  - (f) Ensure that FRMS is integrated in the Operator’s SMS

### **8.11.3 DUTY AND REST PERIODS**

Duty and rest periods for flight crew and cabin crew are contained in IS:8.11.3.

## **8.12 FLIGHT TIME, FLIGHT DUTY PERIODS, DUTY PERIODS AND REST PERIODS FOR FATIGUE MANAGEMENT**

### **8.12.1 APPLICABILITY**

This section shall be applicable to the rest, duty and flight time limitations of crewmembers and flight operations officers or flight dispatchers engaged in commercial air transport flight operations.

### **8.12.2 DUTY AND REST PERIODS – ALL CREWMEMBERS AND FLIGHT OPERATIONS OFFICERS**

- (1) With respect to duty periods—

- (a) Persons are considered to be on duty if they are performing any tasks on behalf of the AOC holder, whether scheduled, requested or self-initiated.
  - (b) If an AOC holder requires a flight crewmember to engage in deadhead transportation for more than 4 hours, one half of that time shall be treated as duty time, unless they are given 10 hours of rest on the ground before being assigned to flight duty.
  - (c) No AOC holder may schedule:
    - (i) A flight crew member for more than 14 hours of duty, except as prescribed by the Authority.
    - (ii) A cabin crew member for more than 14 consecutive hours of duty, except as prescribed by the Authority.
    - (iii) A flight operations officer or aircraft dispatcher for more than 10 consecutive hours of duty within a 24 consecutive hour period, unless that person is given an intervening rest period of at least 8 hours at or before the end of the 10 hours duty, except in cases where circumstances or emergency conditions beyond the control of the AOC holder require otherwise.
  - (d) Each AOC holder shall establish the daily duty period for a flight operations officer or aircraft dispatcher so that it begins at a time that allows him or her to become thoroughly familiar with existing and anticipated weather conditions along the route before he or she dispatches any aircraft.
  - (e) He or she shall remain on duty until each aircraft dispatched by him or her has completed its flight or has gone beyond his or her jurisdiction or until he or she is relieved by another qualified dispatcher.
- (2) With respect to rest periods—
- (a) The minimum rest period is considered to be 8 consecutive hours.
  - (b) The minimum rest period for flight crewmembers shall be 9 consecutive hours, unless otherwise prescribed by the Authority.
  - (c) The AOC holder may exercise the option to reduce a crewmember's rest period within the limitations prescribed under IS: 8.11.3.
  - (d) The AOC holder shall relieve the flight crewmember, flight operations officer or flight dispatcher, or cabin crewmember from all duties for 24 consecutive hours during any 7 consecutive day period.
  - (e) Time spent in transportation, not local in character, which is required by the AOC holder to position crewmembers to or from flights is not considered part of a rest period.

- (f) Time spent in transportation on aircraft (at the insistence of the AOC holder) to or from a crewmember's home station is not considered part of a rest period.
- (g) No AOC holder may assign, nor may any person—
  - (i) Perform duties in commercial air transportation unless that person has had at least the minimum rest period applicable to those duties as prescribed by the Authority; or
  - (ii) Accept an assignment to any duty with the AOC holder during any required rest period.

### **8.12.3 DUTY ALOFT – FLIGHT CREW**

- (1) The Authority shall consider all time spent on an aircraft as an assigned flight crewmember or relief flight crewmember, whether resting or performing tasks, to be duty aloft.
- (2) The Authority shall consider a flight crewmember to be on continuous duty aloft unless the flight crewmember receives a rest period of 8 consecutive hours on the ground.
- (3) Each AOC holder shall provide adequate sleeping quarters, including a berth on the aircraft whenever a flight crewmember is scheduled to be aloft for more than 12 hours during any 24 consecutive hours.

### **8.12.4 MAXIMUM NUMBER OF FLIGHT TIME HOURS – FLIGHT CREW**

- (1) No person may schedule any flight crewmember and no flight crewmember may accept an assignment for flight time in commercial air transportation, if that flight crewmember's total flight time will exceed 8 hours in any 24 consecutive hours.
- (2) No person may schedule any flight crewmember and no flight crewmember may accept an assignment as a required crewmember for more than 7 flights in commercial air transportation during any period of 18 consecutive hours, whichever comes first.
- (3) No person may schedule any flight crewmember and no flight crewmember may accept an assignment for flight time in commercial air transportation, if that flight crewmember's total flight time will exceed 30 hours in any 7-day period.
- (4) No person may schedule any flight crewmember and no flight crewmember may accept an assignment for flight time in commercial air transportation, if that flight crewmember's total flight time will exceed 100 hours in any 30-day period.

- (5) No person may schedule any flight crewmember and no flight crewmember may accept an assignment for flight time in commercial air transportation, if that flight crewmember's total flight time, total flights or duty aloft in commercial flying will exceed the limitations prescribed by the Authority.
- (6) No person may schedule any flight crewmember and no flight crewmember may accept an assignment for flight time in commercial air transportation, if that flight crewmember's total flight time will exceed 1000 hours in any 12-calendar month period.

#### **8.12.5 COMPLIANCE WITH SCHEDULING REQUIREMENTS**

- (1) The Authority may consider a person in compliance with prescribed standards if that person exceeds flight and or duty limitations when—
  - (a) The flight is scheduled and normally terminates within the prescribed limitations; but
  - (b) Due to circumstances beyond the control of the AOC holder (such as adverse weather conditions) are not expected at the time of departure to reach the destination within the scheduled time.
- (2) The Authority may consider a person in compliance with prescribed duty limitations, if that person exceeds applicable limitations during emergency or adverse situations beyond the control of the AOC holder.

#### **8.12.6 SPECIAL FLIGHT DUTY SCHEMES**

- (1) The Authority may approve a special flight duty scheme for an AOC holder.
- (2) An AOC holder may elect to apply the flight crewmember flight duty and rest requirements to the cabin crewmembers.

#### **8.12.7 FLIGHT TIME, DUTY AND REST PERIOD RECORDS**

Each AOC holder shall maintain records for each crew member and flight operations officer or flight dispatcher of flight time, flight duty periods, duty periods, and rest periods for a period of 24 months.

### **8.13 FLIGHT RELEASE: COMMERCIAL AIR TRANSPORT**

#### **8.13.1 APPLICABILITY**

This Subpart is applicable to an AOC holder and the person designated by the AOC holder to issue a flight release.



**8.13.2 QUALIFIED PERSONS REQUIRED FOR OPERATIONAL CONTROL FUNCTIONS**

- (1) A qualified person shall be designated by the AOC holder to exercise the functions and responsibilities for operational control of each flight in commercial air transport.
- (2) For passenger-carrying flights conducted on a published schedule, a licensed and qualified flight operations officer or equivalently qualified person shall be on-duty at an operations base to perform the operational control functions.
- (3) For all other flights, the qualified person exercising operational control responsibilities shall be available for consultation prior to, during and immediately following the flight operation.
- (4) For all flights, the PIC shares in the responsibilities for operational control of the aircraft and has the situational authority to make decisions regarding operational control issues in-flight.
- (5) Where a decision of the PIC differs from that recommended, the person making the recommendation shall make a record of the associated facts.

**8.13.3 FUNCTIONS ASSOCIATED WITH OPERATIONAL CONTROL**

The person exercising responsibility for operational control for an AOC holder shall-

- (a) Authorise the specific flight operations;
- (b) Ensure that an airworthy aircraft properly equipped for the flight is available;
- (c) Ensure that qualified personnel and adequate facilities are available to support and conduct the flight;
- (d) Ensure that proper flight planning and preparation is made;
- (e) Ensure that flight locating and flight following procedures are followed; and
- (f) For scheduled, passenger-carrying flights, ensure the monitoring of the progress of the flight and the provision of information that may be necessary to safety.

**8.13.4 OPERATIONAL CONTROL DUTIES**

- (1) For passenger-carrying flights conducted on a published schedule, the qualified person performing the duties of a flight operations officer or flight dispatcher in

conjunction with a method of control and supervision of flight operations in accordance with 9.3.23 of the Ghana Civil Aviation (Flight Standards) Directives shall:

- (a) Assist the PIC in flight preparation and provide the relevant information required;
  - (b) Assist the PIC in preparing the operational and ATC flight plans, sign when applicable and file the appropriate flight plan with the appropriate ATS unit;
  - (c) Sign the dispatch copy of the flight release;
  - (d) Furnish the PIC while in flight, by appropriate means, with information which may be necessary for the safe conduct of the flight; and
  - (e) In the event of an emergency situation which endangers the safety of the aeroplane or persons becoming known first to the flight operations officer or flight dispatcher, action by that person shall be in accordance with such procedures as outlined in the AOC holder's operations manual. Where necessary, immediately notify the appropriate authorities on the nature of the situation, and if required, a request for assistance.
- (2) In the event of an emergency a qualified person performing the operational control duties shall:
- (a) initiate such procedures as outlined in the operations manual while avoiding taking any action that would conflict ATC, meteorological service, communications service, or AOC holder procedures; and
  - (b) convey safety-related information to the pilot-in-command that may be necessary for the safe conduct of the flight, including information related to any amendments to the flight plan that become necessary in the course of the flight.

#### **8.13.5 CONTENTS OF A FLIGHT RELEASE OR OPERATIONAL FLIGHT PLAN**

- (1) The flight release or operational flight plan must contain at least the following information concerning each flight:
  - (a) Company or organization name.
  - (b) Make, model, and registration number of the aircraft being used.
  - (c) Flight or trip number, and date of flight.
  - (d) Name of each flight crew member, cabin crew, and PIC.
  - (e) Departure aerodromes, destination aerodromes, alternate aerodromes, and route.

- (f) Minimum fuel supply (in gallons, pounds, litres or kg);
  - (g) A statement of the type of operation (e.g., IFR, VFR).
  - (h) The latest available weather reports, and forecasts for the destination aerodrome and alternate aerodromes.
  - (i) Any additional available weather information that the PIC considers necessary.
- (2) The Operations Manual must describe the content and use of the operational flight Plan.
  - (3) The dispatch or flight release or operational flight plan shall be signed by the PIC and, when applicable, the flight operations officer, and a copy shall be filed with the Operator or a designated agent. If these procedures are not possible, it shall be left with the aerodrome authority or on record at a suitable place at the point of departure.

#### **8.13.6 FLIGHT RELEASE: AIRCRAFT REQUIREMENTS**

- (1) No person may issue a flight release for a commercial air transport operation unless the aircraft is airworthy and properly equipped for the intended flight operation.
- (2) No person may issue a flight release for a commercial air transport operation using an aircraft with inoperative instruments and equipment installed, except as specified in the Minimum Equipment List approved for the AOC holder for that type of aircraft.
- (3) No person may issue a flight release for a commercial air transport operation using an aircraft unless a maintenance release has been issued for that aircraft.
- (4) No person may issue a flight release for a commercial air transport operation unless the requirements of subpart 8.13.5 for operational flight planning have been met.
- (5) Completed flight preparation forms shall be kept by an operator for a period of 3 months.

#### **8.13.7 FLIGHT RELEASE: FACILITIES AND NOTAMS**

- (1) No person may release an aircraft over any route or route segment unless there are adequate communications and navigational facilities in satisfactory operating condition as necessary to conduct the flight safely.

- (2) The flight operations officer shall ensure that the PIC is provided with all available current reports or information on aerodrome conditions and irregularities of navigational facilities that may affect the safety of the flight.
- (3) No person may issue a flight release for a commercial air transport operation unless the requirements of Subsection 8.13.5 for operational flight planning have been met.
- (4) Completed flight preparation forms shall be kept by an operator for a period of 3 months.

*Note: For the review of the operational flight plan, the PIC will be provided with all available NOTAMs with respect to the routing, facilities and aerodromes.*

#### **8.13.8 FLIGHT RELEASE: WEATHER REPORTS AND FORECASTS**

- (1) No person may release a flight unless he or she is thoroughly familiar with reported and forecast weather conditions on the route to be flown.
- (2) No person may release a flight unless he or she has communicated all information and reservations they may have regarding weather reports and forecasts to the PIC.
- (3) No person may issue a flight release for a commercial air transport operation unless the requirements of Subsection 8.13.5 for operational flight planning have been met.
- (4) Completed flight preparation forms shall be kept by an operator for a period of 3 months.

#### **8.13.9 FLIGHT RELEASE IN ICING CONDITIONS**

- (1) No person may release an aircraft, when in their opinion or that of the PIC, the icing conditions that may be expected or are met, exceed that for which the aircraft is certified and has sufficient operational de-icing or anti-icing equipment.
- (2) No person may release an aircraft any time conditions are such that frost, ice or snow may reasonably be expected to adhere to the aircraft, unless there is available to the PIC at the aerodrome of departure adequate facilities and equipment to accomplish the procedures approved for the AOC holder by the Authority for ground de-icing and anti-icing.
- (3) No person may issue a flight release for a commercial air transport operation unless the requirements of Subsection 8.13.5 for operational flight planning have been met.
- (4) Completed flight preparation forms shall be kept by an operator for a period of 3 months.

**8.13.10 FLIGHT RELEASE UNDER VFR OR IFR**

No person may release a flight under VFR or IFR unless the weather reports and forecasts indicated that the flight can reasonably be expected to be completed as specified in the release.

**8.13.11 FLIGHT RELEASE: MINIMUM FUEL SUPPLY**

- (1) No person may issue a flight release for a commercial air transport operation unless the fuel supply specified in the release is equivalent to or greater than the minimum flight planning requirements of this Part, including anticipated contingencies.
- (2) No person may issue a flight release for a commercial air transport operation unless the requirements of Subsection 8.13.5 for operational flight planning have been met.
- (3) Completed flight preparation forms shall be kept by an operator for a period of 3 months.

**8.13.12 FLIGHT RELEASE: AIRCRAFT LOADING AND PERFORMANCE**

- (1) No person may issue a flight release unless he or she is familiar with the anticipated loading of the aircraft and is reasonably certain that the proposed operation will not exceed the-
  - (a) Centre of gravity limits;
  - (b) Aircraft operating limitations; and
  - (c) Minimum performance requirements.
- (2) No person may issue a flight release for a commercial air transport operation unless the requirements of Subsection 8.13.5 for operational flight planning have been met.
- (3) Completed flight preparation forms shall be kept by an operator for a period of three (3) months.

**8.13.13 FLIGHT RELEASE: AMENDMENT OR RE-RELEASE EN ROUTE**

- (1) Each person who amends a flight release while the flight is enroute shall record that amendment.
- (2) No person may amend the original flight release to change the destination or alternate aerodrome while the aircraft is en route unless the flight preparation

requirements for routing, aerodrome selection and minimum fuel supply are met at the time of amendment or re-release.

- (3) No person may allow a flight to continue to an aerodrome to which it has been released if the weather reports and forecast indicate changes which would render that aerodrome unsuitable for the original flight release.
- (4) No person may issue a flight release for a commercial air transport operation unless the requirements of Subsection 8.13.5 for operational flight planning have been met.
- (5) Completed flight preparation forms shall be kept by an operator for a period of 3 months.

#### **8.13.14 FLIGHT RELEASE WITH AIRBORNE WEATHER RADAR EQUIPMENT**

- (1) No person may release a large aircraft carrying passengers under IFR or night VFR conditions when current weather reports indicate that thunderstorms, or other potentially hazardous weather conditions that can be detected with airborne weather radar may reasonably be expected along the route to be flown unless the airborne weather radar equipment is in satisfactory operating condition.
- (2) No person may issue a flight release for a commercial air transport operation unless the requirements of Subsection 8.13.5 for operational flight planning have been met.
- (3) Completed flight preparation forms shall be kept by an operator for a period of three (3) months.

### **8.14 AIRCRAFT NOISE**

#### **8.14.1 APPLICABILITY**

The provisions of this section shall apply to:

- (a) Every propeller driven aeroplane having a maximum total mass authorised of 5,700 kg or less;
- (b) Every aeroplane which is capable of sustaining level flight at a speed in excess of Flight Mach 1.0, being an aeroplane in respect of which applicable standards are specified para 8.13.7;
- (c) Every aeroplane having an empty mass not exceeding 150 kg, a wing area of not less than 10 square metres and a wing loading not exceeding 10 kg

per square metre at empty mass and which is designed to carry not more than two persons;

- (d) Every other aeroplane which in accordance with its certificate of airworthiness has a take-off distance required, at maximum total mass authorised on a hard level runway in still air in an International Standard Atmosphere at sea level, of more than 610 metres.

#### **8.14.2 REQUIREMENT OF NOISE CERTIFICATE**

An aeroplane shall not land or take-off in Ghana unless:

- (a) in respect of an aeroplane specified in this provision, there is in force in respect of that aeroplane a noise certificate: -
  - (i) issued by the Authority; or
  - (ii) issued by the competent authority of the country in which the aeroplane is registered, being a country prescribed as one which applies standards which in the opinion of the Director-General are substantially equivalent to those required for the issue of a noise certificate by the Authority; and
  - (iii) issued in pursuance of the Convention of ICAO by the competent authority of the State in which the aeroplane is registered; and
- (b) in respect of an aeroplane specified in subparagraph (iii) above, there is in force in respect of that aeroplane a noise certificate: -
  - (i) issued by the Authority; or
  - (ii) issued by the competent authority of the country in which the aeroplane is registered, being a country, which applies standards which in the opinion of the Authority are substantially equivalent to those required for the issue of a noise certificate by the Authority; and
  - (iii) any conditions subject to which the certificate was issued are complied with,

provided that the foregoing prohibition shall not apply to an aeroplane landing or taking-off at a prescribed place.

#### **8.14.3 ISSUANCE OF NOISE CERTIFICATE AND VALIDITY OF NOISE CERTIFICATE**

- (1) The Authority shall issue a noise certificate in respect of any aeroplane to which this Directive applies if it is satisfied that the aeroplane complies with the applicable standards specified in these Directives in relation to the noise made by the aeroplane, and for that purpose the applicant for a certificate shall furnish

such evidence and submit the aeroplane to such flying trials and other tests as the Authority may require.

- (2) The standards applicable to an aeroplane having turbojet or turbofan engines shall be as specified in this Directive.
- (3) The standards applicable to an aeroplane having turbojet or turbofan engines which, in the opinion of the Authority: -
  - (a) conforms to a prototype aeroplane in respect of which the authorities of the State of manufacture received an application for a certificate of airworthiness on or after 6<sup>th</sup> October 1977 and did not reject that application; or
  - (b) conforms to a modification of such a prototype aeroplane, being a modification in respect of which the authorities of the State of manufacture received an application to modify the certificate of airworthiness for the prototype on or after 6<sup>th</sup> October 1977 and did not reject that application, shall be those specified in these Directives.

#### **8.14.4 NOISE CERTIFICATE TO BE CARRIED**

- (1) An aeroplane shall not land or take-off in Ghana unless it carries any noise certificate which it is required to carry under the law of the country in which it is registered.
- (2) An aeroplane registered in Ghana shall, when in flight, whether within Ghana or elsewhere, carry any noise certificate which is required by this regulation to be in force in respect of that aeroplane:
  - (a) Provided that if the flight is intended to begin and end at the same aerodrome, the certificate may be kept at that aerodrome instead of being carried in the aeroplane.

#### **8.14.5 PRODUCTION OF NOISE CERTIFICATE**

The commander of an aeroplane shall, within a reasonable time after being requested to do so by an authorised person, cause to be produced to that person the noise certificate in force in respect of that aeroplane.

#### **8.14.6 REVOCATION, SUSPENSION AND VARIATION OF NOISE CERTIFICATES**

- (1) The Authority may, if it thinks fit, provisionally suspend any noise certificate, approval, exemption or other document issued under this regulation pending enquiry into or consideration of the case. The Authority may, after sufficient ground being shown to its satisfaction after due enquiry, revoke, suspend or vary any such certificate, approval, exemption or other document.



- (2) The holder or any person having the possession or custody of any noise certificate, approval, exemption or other document which has been revoked, suspended or varied under this section shall surrender it to the Authority within a reasonable time after being required to do so by it.
- (3) The breach of any condition subject to which any noise certificate, approval, exemption or other document has been issued under this regulation shall render the certificate invalid during the continuance of the breach.

#### **8.14.7 NOISE STANDARDS REQUIRED FOR ISSUANCE OF A NOISE CERTIFICATE TO AEROPLANES**

- (1) In this Section of this Directive, “the noise certification reference conditions” means conditions in which-
  - (a) atmospheric pressure at sea level is 1013.25 millibars;
  - (b) ambient air temperature is 25°C;
  - (c) relative humidity is 70%;
  - (d) there is zero wind; and
  - (e) the maximum take-off and landing weights of the aeroplane are those at which noise certification is requested by the applicant for the certificate.
- (2) The noise levels required by this regulation shall be measured at the following points:
  - (a) on take-off, at a point on a line parallel to and 650 metres from the extended centreline of the runway where it appears to the Authority that the noise during take-off is greatest;
  - (b) on take-off, at a point on the extended centreline of the runway, 6,500 metres from the start of the take-off run; and
  - (c) on the approach to landing at a point on the extended centreline of the runway, 120 metres vertically below the 3<sup>0</sup> descent path.
- (3) Subject to the provisions of this regulation an aeroplane having the maximum total weight authorised specified in the first column of the following Table shall not, exceed in the noise certification reference conditions, the noise levels specified in relation to those points in the 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> columns of that Table, as shown by flying trials.

**TABLE**

| Maximum total weight<br>authorised of aeroplane | Noise level in EPNdB |              |              |
|---|----------------------|--------------|--------------|
|   | At point (a)         | At point (b) | At point (c) |
| 272 000 kg or more                              | 108                  | 108          | 108          |
| 34 000 kg or less                               | 102                  | 93           | 102          |

- (4) Where the maximum total weight authorised of the aeroplane is between the weights specified in the above Table, the noise levels which are not to be exceeded shall vary linearly according to the logarithm of the maximum total weight authorised of the aeroplane.
- (5) The necessary corrections shall be made where the flying trials are carried out in conditions other than the noise certification reference conditions.

**8.15 DANGEROUS GOODS MANAGEMENT****8.15.1 APPLICABILITY**

These dangerous goods transportation by air requirements apply to shippers, operators and users by which articles and substances with hazardous properties can be safely transported by air on all commercial air transport.

**8.15.2 GENERAL REQUIREMENTS**

- (1) No operator may transport dangerous goods unless approved to do so by the Authority.
- (2) Before any person offers package or overpack of dangerous goods for transport by air he or she must ensure compliance to the ICAO Technical Instructions for the safe Transport of Dangerous Goods by Air (ICAO Doc. 9284).
- (3) Transport of infectious substances requires coordinated action by the shipper, the operator and the consignee to ensure safe transport and arrival on time and in proper condition in accordance with the technical instructions.
- (4) Transport of Radioactive material shall be in accordance with the technical instructions.

- (5) Articles and substances which would otherwise be classed as dangerous goods are excluded from the provisions of this Subpart, to the extent specified in the Technical Instruction, provided they are-
- (a) Required to be aboard the aircraft for operating reasons;
  - (b) Carried as catering or cabin service supplies;
  - (c) Carried for use in flight as veterinary aid or as a humane killer for an animal;  
or
  - (d) Carried for use in flight for medical aid for a patient, provided that-
    - (i) Gas cylinders have been manufactured specifically for the purpose of containing and transporting that particular gas;
    - (ii) Drugs, medicines and other medical matter are under the control of trained personnel during the time when they are in use in the aircraft;
    - (iii) Equipment containing wet cell batteries is kept and, when necessary secured, in an upright position to prevent spillage of the electrolyte; and
    - (iv) Proper provision is made to stow and secure all the equipment during take-off and landing and at all other times when deemed necessary for the PIC in the interest of safety; or
    - (v) They are carried by passenger or crewmembers
- (6) Articles and substances intended as replacements for those in paragraph(a)(1) may be transported on an article as specified in the Technical Instructions.

### **8.15.3 LIMITATIONS OF DANGEROUS GOODS ON AIRCRAFT**

- (1) Persons involved in dangerous goods described hereunder shall take all reasonable measures to ensure that articles and substances that are specifically identified by name or generic description in the Technical instructions as being forbidden for transport under any circumstances are not carried on any aircraft.
- (2) Each AOC holder shall take all reasonable measures to ensure that articles and substances or other goods that are identified in the Technical Instructions as being forbidden for transport in normal circumstances are transported only when:
- (a) They are exempted by the States concerned under the provisions of the Technical Instructions; or
  - (b) The Technical Instructions indicate they may be transported under an approval issued by the State of Origin.

**8.15.4 CLASSIFICATION**

Each person involved in handling dangerous goods shall take all reasonable measures to ensure that articles and substances are classified as dangerous goods as specified in the Technical Instructions.

**8.15.5 PACKING**

Each person involved in handling dangerous goods shall take all reasonable measures to ensure that dangerous goods are packed as specified in the Technical Instructions.

**8.15.6 LABELLING AND MARKING**

- (1) Each person involved in handling dangerous goods shall take all reasonable measures to ensure that packages, overpacks and freight containers are labelled and marked as specified in the Technical Instructions.
- (2) Where dangerous goods are carried on a flight which takes place wholly or partly outside the territory of Ghana the shipper and operator shall ensure that labelling and marking are in the English language in addition to any other language requirements.

**8.15.7 DANGEROUS GOODS TRANSPORT DOCUMENT**

- (1) Each operator shall ensure that, except when otherwise specified in the Technical Instructions dangerous goods are accompanied by a dangerous goods transport document
- (2) Where dangerous goods are carried on a flight, which takes place wholly, or partly outside the territory of a State, the AOC holder shall ensure that the English language is used for the dangerous goods transport document in addition to any other language requirements.

**8.15.8 ACCEPTANCE OF DANGEROUS GOODS**

- (1) No operator may accept dangerous goods for transport until the package, overpack or freight container has been inspected in accordance with the acceptance procedures in the Technical Instructions.
- (2) Each operator, or its handling agent, shall use an acceptance check list which-
  - (a) Shall allow for all relevant details to be checked; and
  - (b) Shall be in such form as will allow for the recording of the results of the acceptance check by manual, mechanical or computerised means.

**8.15.9 INSPECTION FOR DAMAGE, LEAKAGE OR CONTAMINATION**

Each operator, shipper or handling agent shall ensure that:

- (a) Packages, overpacks and freight containers are inspected for evidence of leakage or damage immediately prior to loading on an aircraft or into a unit load device, as specified in the Technical Instructions;
- (b) A unit load device is not loaded on an aircraft unless it has been inspected as required by the Technical Instructions and found free from any evidence of leakage from, or damage to, the dangerous goods contained therein;
- (c) Leaking or damaged packages, overpacks or freight containers are not loaded on an aircraft;
- (d) Any package of dangerous goods found on an aircraft and which appears to be damaged or leaking is removed, or arrangements made for its removal by an appropriate authority or organisation;
- (e) After removal of any leaking or damaged goods, the remainder of the consignment is inspected to ensure it is in a proper condition for transport and that no damage or contamination has occurred to the aircraft or its load; and
- (f) Packages, overpacks and freight containers are inspected for signs of damage or leakage upon unloading from an aircraft or from a unit load device and, if there is evidence of damage or leakage, the area where the dangerous goods were stowed is inspected for damage or contamination.

**8.15.10 REMOVAL OF CONTAMINATION**

Each operator shall ensure that-

- (a) Any contamination found as a result of the leakage or damage of dangerous goods is removed without delay; and
- (b) An aircraft which has been contaminated by radioactive materials is immediately taken out of service and not returned until the radiation level at any accessible surface and the non-fixed contamination are not more than the values specified in the Technical Instructions.

**8.15.11 LOADING RESTRICTIONS**

- (1) **Passenger Cabin and Flight Deck.** Each operator shall ensure that dangerous goods are not carried in an aircraft cabin occupied by passengers or on the flight deck, unless otherwise specified in the Technical Instructions.

- (2) **Cargo Compartments.** Each operator shall ensure that dangerous goods are loaded, segregated, stowed and secured on an aircraft as specified in the Technical Instructions.
- (3) **Dangerous Goods Designated for Carriage Only on Cargo Aircraft.** Each operator shall ensure that packages of dangerous goods bearing the “Cargo Aircraft Only” label are carried on a cargo aircraft and loaded as specified in the Technical Instructions.

#### 8.15.12 PROVISION OF INFORMATION

- (1) **Information to Ground Staff.** Each operator shall ensure that;
  - (a) Information is provided to enable ground staff to carry out their duties with regard to the transport of dangerous goods, including the actions to be taken in the event of incidents and accidents involving dangerous goods; and
  - (b) Where applicable, the information referred to in paragraph (a) is also provided to the handling agent.
- (2) **Information to Passengers.** Each operator shall ensure that information is promulgated as required by the Technical Instructions so that passengers are warned as to the types of goods which they are forbidden from transporting aboard an aircraft.
- (3) **Information to Acceptance Points Personnel.** Each operator, and where applicable, the handling agent shall ensure that notices are provided at acceptance points for cargo giving information about the transport of dangerous goods.
- (4) **Information to Crew Members.** Each operator shall ensure that information is provided in the Operations Manual to enable crew members to carry out their responsibilities in regard to the transport of dangerous goods, including the actions to be taken in the event of emergencies arising involving dangerous goods.
- (5) **Information to the PIC.** Each operator shall ensure that the PIC is provided with written information, as specified in the Technical Instructions;
- (6) **Information in the Event of an Aircraft Incident or Accident.** Each operator which is involved in an aircraft incident shall-
  - (a) As soon as possible, inform the appropriate authority of the State in which the aircraft accident occurred of dangerous goods carried; and
  - (b) On request, provide any information required to minimise the hazards created by any dangerous goods carried.

**8.15.13 TRAINING PROGRAMMES**

Each shipper, operator and agencies who handles or conduct operations in the transportation of Dangerous Goods By Air shall establish, maintain and conduct GCAA approved training programmes which enables the operator's personnel to qualify for the function or in the area assigned to the personnel as follows:

**8.15.14 INITIAL DANGEROUS GOODS TRAINING**

- (1) Each operator holding a permanent approval to carry dangerous goods shall ensure that-
  - (a) Personnel engaged in general cargo handling have received training to carry out their duties in respect of dangerous goods. At a minimum, this training shall cover the areas identified in Column 1 of Table 1 and be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods and how to identify such goods; and
  - (b) Aircraft crew members, passenger handling staff, and security staff employed by the operator or handling agents who deal with the screening of passengers and their baggage, have received training which, at a minimum, shall cover the areas identified in Column 2 of Table 1 and be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods, how to identify them and what requirements apply to the carriage of such goods by passengers.

**Table 1**

| <b>Areas of Dangerous Goods Training</b>        | <b>1</b> | <b>2</b> |
|---|----------|----------|
| General Philosophy                              | x        | x        |
| Limitations on Dangerous Goods in Air Transport | x        | x        |
| Package Marking and Labelling                   | x        | x        |
| Dangerous Goods in Passengers' Baggage          |          | x        |
| Emergency Procedures                            |          | x        |

*Note: x indicates an area to be covered*

- (2) Each operator holding a permanent approval to carry dangerous goods shall ensure that –
  - (a) Personnel engaged in the acceptance of dangerous goods have received training and are qualified to carry out their duties. At a minimum, this training shall cover the areas identified in Column 1 of Table 2 and be to a depth sufficient to ensure the staff can take decisions on the acceptance or refusal of dangerous goods offered for carriage by air;

- (b) Personnel engaged in ground handling, storage and loading of dangerous goods have received training to enable them to carry out their duties in respect of dangerous goods. At a minimum, this training shall cover the areas identified in Column 2 of Table 2 and be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods, how to identify such goods and how to handle and load them;
- (c) Personnel engaged in general cargo handling have received training to enable them to carry out their duties in respect of dangerous goods. At a minimum, this training shall cover the areas identified in Column 3 of Table 2 and be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods, how to identify such goods and how to handle and load them;
- (d) Flight crew members have received training which, at a minimum, shall cover the areas identified in Column 4 of Table 2. Training shall be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods and how they should be carried on an aircraft; and
- (e) Passenger handling staff, security staff employed by the operator who deal with the screening of passengers and their baggage and crew members (other than flight crew members) have received training which, at a minimum, shall cover the areas identified in Column 5 of Table 2. Training shall be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods and what requirements apply to the carriage of such goods by passengers or, more generally, their carriage on an aircraft.
- (3) Each shipper, operator and handling agent shall ensure that all personnel who require dangerous goods recurrent training at intervals of no longer than 2 years.
- (4) Each AOC holder shall ensure that records of dangerous training are maintained for all personnel required for such training and that these records are maintained at the location where the personnel perform such duties.
- (5) Each AOC holder shall ensure that its handling agent's staff (shippers) are trained in accordance with the applicable column of Table 1 or Table 2.

**Table 2**

| <b>Areas of Training</b>                        | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
|---|----------|----------|----------|----------|----------|
| <b>General Philosophy</b>                       | x        | x        | x        | x        | x        |
| Limitations on Dangerous Goods in Air Transport | x        | x        | x        | x        | x        |
| Classification and list of Dangerous Goods      | x        | x        |          | x        |          |



|  |   |   |   |   |   |
|--|---|---|---|---|---|
| General Packing Requirements and Packing Instructions            | x |   |   |   |   |
| Packaging Specifications Marking                                 | x |   |   |   |   |
| Package Marking and Labelling                                    | x | x | x | x | x |
| Documentation from the Shipper                                   | x |   |   |   |   |
| Acceptance of Dangerous Goods, including the use of a checklist  | x |   |   |   |   |
| Loading, Restrictions on Loading and Segregation                 | x | x | x | x |   |
| Inspections for Damage or Leakage and Decontamination Procedures | x | x |   |   |   |
| Provision of information to Commander                            | x | x |   | x |   |
| Dangerous Goods in Passengers' Baggage                           | x |   |   | x | x |
| Emergency Procedures   | x | x |   | x | x |

**Note:** x indicates an area to be covered.

- (6) An AOC holder shall provide dangerous goods training manual which contains adequate procedures and information to assist personnel in identifying packages marked or labelled as containing hazardous materials including –
- (a) Instructions on the acceptance, handling, and carriage of hazardous materials;
  - (b) Instruments governing the determination of proper shipping names and hazard classes;
  - (c) Packaging, labelling, and marking requirements;
  - (d) Requirements for shipping papers, compatibility requirements, loading, storage and handling requirements; and
  - (e) Restrictions.

#### **8.15.15 CARRIAGE OF WEAPONS AND OF MUNITIONS OF WAR**

- (1) An aircraft shall not carry any munitions of war unless –
- (a) such munitions of war are carried with the written permission of the Authority and in accordance with any condition relating thereto; and
  - (b) the commander of the aircraft is informed in writing by the operator before the flight commences of the type, weight, quality and location of any such munitions of war on board or suspended beneath the aircraft and any condition of the permission of the Authority.

- (2) Notwithstanding subparagraph 8.15.14(1)(a) it shall be unlawful to permit an aircraft to carry any weapon or munitions of war in any compartment or apparatus to which passengers have access.
- (3) It shall be unlawful for a person to carry or have in his possession or take or cause to be taken on board an aircraft, to suspend or cause to be suspended beneath an aircraft or to deliver or cause to be delivered for carriage any weapon or munitions of war unless-
  - (a) the weapon or munitions of war-
    - (i) is either part of the baggage of a passenger on the aircraft or consigned as cargo to be carried.
    - (ii) is carried in a part of the aircraft, or in any apparatus attached to the aircraft inaccessible to passengers; and
    - (iii) in case of a firearm, is unloaded;
  - (b) Particulars of the weapon or munitions of war have been furnished by that passenger or by the consignor to the operator before the flight commences; and
  - (c) without prejudice to sub-regulation (1) the operator consents to the carriage of such weapon or munitions of war by the aircraft.
- (4) Nothing in this Directive shall apply to any weapon or munitions of war taken or carried on board an aircraft if the weapon or munitions of war, may under the law of the country in which the aircraft is registered be lawfully taken or carried on board for the purpose of ensuring the safety of the aircraft or of persons on board.
- (5) For the purpose of this Directive, “munitions of war” means any weapon, ammunition or article containing an explosive or any noxious liquid, gas or other thing which is designed or made for use in warfare or against persons including parts, whether components or accessories for such weapon, ammunition or article.



# GHANA CIVIL AVIATION (FLIGHT STANDARDS) DIRECTIVES



## PART 8 – IMPLEMENTING STANDARDS

For ease of reference, the number assigned to each implementing standard corresponds to its associated directive. For example, IS 8.2.1.5. reflects the standard required in subsection 8.2.1.5 of these Directives.

**NOVEMBER 2018**

**GHANA CIVIL AVIATION (FLIGHT STANDARDS) DIRECTIVES**

*Implementing Standard: Part 8 – Operations*

**IS: 8.2.1.5 INOPERATIVE INSTRUMENTS AND EQUIPMENT**

(1) This implementing standard authorises flight operations with inoperative instruments and equipment installed in situations where no master minimum equipment list (MMEL) is available and no MEL is required for the specific aircraft operation under these Directives.

(2) The inoperative instruments and equipment may not be-

(a) Part of the VFR-day instruments and equipment prescribed in Part 7;

(b) Required on the aircraft's equipment list or the operations equipment list for the kind of flight operation being conducted;

(c) Required by Part 7 for the specific kind of flight operation being conducted;  
or

(d) Required to be operational by an airworthiness directive;

(3) To be eligible for these provisions, the inoperative instruments and equipment shall be-

(a) Determined by the PIC not to be a hazard to safe operation;

(b) Deactivated and placarded inoperative; and

**Note:** *If deactivation of the inoperative instrument or equipment involves maintenance, it must be accomplished and recorded in accordance with Part 5.*

(c) Removed from the aircraft, the flight deck control placarded and the maintenance recorded in accordance with Part 5.

(4) The following instruments and equipment may not be included in the MEL:

(a) Instruments and equipment that are either specifically or otherwise required by the certification airworthiness requirements and which are essential for safe operations under all operating conditions.

(b) Instruments and equipment required for operable condition by an airworthiness directive, unless the airworthiness directive provides otherwise.

(c) Instruments and equipment required for specific operations.

**Note:** *The required instruments and equipment for specific operations are listed in Part 7.*

**IS 8.2.1.8 (3) ARTICLE 83 BIS AGREEMENT SUMMARY**

Note 1: GCADs 8.8.1.8(3) requires a certified true copy of the agreement summary to be carried on board

Note 2: The Article 83 bis agreement summary should contain the information in the template at paragraph 2, in a standardized format.

| <b>ARTICLE 83 bis AGREEMENT SUMMARY</b>                    |   |                                       |  |
|--|---|---------------------------------------|--|
| Title of the Agreement:                                    |   |                                       |  |
| State of Registry:   |   | Focal point:                          |  |
| State of the Operator:                                     |   | Focal point:                          |  |
| Date of signature:   | By State of Registry <sup>1</sup>   |                                       |  |
|  | By State of Operator <sup>1</sup>   |                                       |  |
| Duration:  | Start Date  | End Date (if applicable) <sup>2</sup> |  |
|  |   |                                       |  |
| Languages of the Agreement                                 |   |                                       |  |
| ICAO Registration No.:                                     |   |                                       |  |
| Umbrella Agreement (if any) with ICAO Registration number: |   |                                       |  |
|  |   |                                       |  |
| <b>Chicago Convention</b>                                  | <b>ICAO Annexes affected by the transfer to the State of the Operator of responsibility in respect of certain functions and duties</b>  |                                       |  |
| Article 12: Rules of the Air                               | Annex 2, all chapter  | Yes                                   |  |
|  |   | No                                    |  |
| Article 30 a): Aircraft radio equipment                    | Radio Station Licence   | Yes                                   |  |
|  |   | No                                    |  |
| Articles 30 b) and 32 a): Personnel Licensing              | Annex 1, Chapters 1, 2, 3 and 6 and Annex 6 Part I, Radio Operator or Part III, section II, Composition of the flight crew (radio operator) and/or Part II, Qualifications and/or Flight crew member licensing or Part III, Section III, Qualifications | Yes                                   | Annex 6: [Specify Part and paragraph] <sup>3</sup> |
|  |   | No                                    |  |
|  | Annex 6   | Yes                                   |  |

| Article 31: Certificates of Airworthiness | Part I or Part III, Section II  |           | No                               | [Specify Part and chapters] <sup>3</sup> |                                 |
|---|---|-----------|----------------------------------|--|---------------------------------|
|   | Annex 6<br>Part I or Part III, Section II   |           | Yes                              | [Specify Part and chapters] <sup>3</sup> |                                 |
|   |   |           | No                               |  |                                 |
|   | Annex 8<br>Part II, Chapters 3 and 4  |           | Yes                              | [Specify chapters] <sup>3</sup>          |                                 |
|   |   |           | No                               |  |                                 |
|   | <b>Aircraft affected by the transfer of responsibilities to the State of the Operator</b> |           |                                  |  |                                 |
| Aircraft make, model, series              | Nationality and Registration marks  | Serial No | AOC # (Commercial air transport) | Dates of transfer of responsibilities    |                                 |
|   |   |           |                                  | From <sup>1</sup>                        | To (if applicable) <sup>2</sup> |
|   |   |           |                                  |  |                                 |

Notes.—

1. dd/mm/yyyy.

2. dd/mm/yyyy or N/A if not applicable.

3. Square brackets indicate information that needs to be provided.

**IS 8.4.16 GENERAL AVIATION SPECIFIC APPROVALS**

(1) Specific approvals shall have a standardized format which contains the minimum information required in the specific approval template.

Note.— When the operations to be conducted require a specific approval, a copy of the document(s) needs to be carried on board

|  |                  |
|--|------------------|
| <b>SPECIFIC APPROVAL</b>                           |                  |
| <b>GHANA CIVIL AVIATION AUTHORITY <sup>1</sup></b> |                  |
| GHANA CIVIL AVIATION AUTHORITY                     |                  |
| Address  |                  |
| Tel:   | Fax:      Email: |
|  |                  |
| Date <sup>2</sup> :                                | Signature:       |



| OWNER/OPERATOR  |                          |                          |   |         |
|---|--------------------------|--------------------------|---|---------|
| Name <sup>3</sup> :   |                          | Address:                 |   |         |
| Telephone:  |                          | Fax:                     |   | Email:  |
| Aircraft model and registration marks <sup>4</sup> :          |                          |                          |   |         |
| SPECIFIC APPROVAL   | YES                      | NO                       | DESCRIPTION <sup>5</sup>  | REMARKS |
| Low visibility operations<br>Approach and landing<br>Take-off | <input type="checkbox"/> | <input type="checkbox"/> | CAT <sup>6</sup> ____ RVR: ____m DH: ____ft<br>RVR <sup>7</sup> ____m |         |
| Operational credit(s)   | <input type="checkbox"/> | <input type="checkbox"/> | <sup>8</sup>  |         |
| RVSM  | <input type="checkbox"/> | <input type="checkbox"/> |   |         |
| AR navigation specifications for PBN operations               | <input type="checkbox"/> | <input type="checkbox"/> | <sup>9</sup>  |         |
| EFB   | <input type="checkbox"/> | <input type="checkbox"/> |   |         |
| Other <sup>10</sup>   | <input type="checkbox"/> | <input type="checkbox"/> |   |         |

## Notes

1. The Ghana Civil Aviation Authority and its contact details, including the telephone country code and email if available.
2. Issuance date of the specific approval (dd-mm-yyyy) and signature of the authority representative.
3. Owner or operator's name and address.
4. Insert the aircraft make, model and series, or master series, if a series has been designated. The CAST/ICAO taxonomy is available at: <http://www.intlaviationstandards.org/>.
5. List in this column the most permissive criteria for each specific approval (with appropriate criteria).
6. Insert the applicable precision approach category (CAT II, or III). Insert the minimum RVR in metres and decision height in feet. One line is used per listed approach category.
7. Insert the approved minimum take-off RVR in metres, or the equivalent horizontal visibility if RVR is not used. One line per approval may be used if different approvals are granted.
8. List the airborne capabilities (i.e. automatic landing, HUD, EVS, SVS, CVS) and associated operational credit(s) granted.
9. Performance-based navigation (PBN): one line is used for each PBN AR navigation

specification approval (e.g. RNP AR APCH), with appropriate limitations listed in the “Description” column.

10 List EFB functions used for the safe operation of aircraft and any applicable limitations

.11. Other specific approvals or data can be entered here, using one line (or one multi-line block) per approval (e.g. specific approach operations approval )

### **IS 8.7.2.3 SINGLE-ENGINE AND MULTI-ENGINE AEROPLANE OPERATIONS**

(1) An AOC holder shall not operate single-engine turbine-powered aeroplanes either at night, in IMC or both unless the following airworthiness and operational requirements have been satisfied by the operator and approved by the Authority:

(a) Turbine engine reliability shall be shown to have a power loss rate of less than 1 per 100 000 engine hours.

*Note: Power loss in this context is defined as any loss of power, the cause of which may be traced to faulty engine or engine component design or installation, including design or installation of the fuel ancillary or engine control systems.*

(b) To minimise the probability of in-flight engine failure, the engine shall be equipped with:

- i. An ignition system that activates automatically, or is capable of being operated manually, for take-off and landing, and during flight, in visible moisture;
- ii. A magnetic particle detection or equivalent system that monitors the engine, accessories gearbox, and reduction gearbox, and which includes a flight deck caution indication; and
- iii. An emergency engine power control device that permits continuing operation of the engine through a sufficient power range to safely complete the flight in the event of any reasonably probable failure of the fuel control unit.

(c) SYSTEMS AND EQUIPMENT. Single-engine turbine-powered aeroplanes approved to operate either at night, in IMC or both shall be equipped with the following systems and equipment intended to ensure continued safe flight and to assist in achieving a safe forced landing after an engine failure, under all allowable operating conditions:

- i. Two separate electrical generating systems, each one capable of supplying all probable combinations of continuous in-flight electrical loads for instruments, equipment, and systems required either at night, in IMC or both;

- ii. A radio altimeter;
  - iii. An emergency electrical supply system of sufficient capacity and endurance, following loss of all generated power, to as a minimum:
    - A. Maintain the operation of all essential flight instruments, communication, and navigation systems during a descent from the maximum certificated altitude in a glide configuration to the completion of a landing;
    - B. Lower the flaps and landing gear, if applicable;
    - C. Provide power to one pitot heater, which shall serve an air speed indicator clearly visible to the pilot;
    - D. Provide for operation of the landing light specified in subparagraph (x) of this IS;
    - E. Provide for one engine restart, if applicable; and
    - F. Provide for the operation of the radio altimeter;
  - iv. Two attitude indicators, powered from independent sources;
  - v. A means to provide for at least one attempt at engine re-start;
  - vi. Airborne weather radar;
  - vii. A certified RNAV system capable of being programmed with the positions of aerodromes and safe forced landing areas, and providing instantly available track and distance information to those locations;
  - viii. For passenger operations, passenger seats and mounts that meet dynamically tested performance standards and are fitted with a shoulder harness or a safety belt with a diagonal shoulder strap for each passenger seat;
  - ix. In pressurised aeroplanes, sufficient supplemental oxygen for all occupants for descent following engine failure at the maximum glide performance from the maximum certificated altitude to an altitude at which supplemental oxygen is no longer required;
  - x. A landing light that is independent of the landing gear and is capable of adequately illuminating the touchdown area in a night forced landing; and
  - xi. An engine fire warning system.
- (d) **MINIMUM EQUIPMENT LIST.** An AOC holder shall develop an MEL approved by the Authority that is appropriate to the type of single-engine turbine-powered aeroplane operated, specifying the operating equipment required for either at night, in IMC or both operations and for day/VMC operations.

(e) AIRCRAFT FLIGHT MANUAL INFORMATION. The Aircraft Flight Manual shall include limitations, procedures, approval status, and other information relevant to operations by single-engine turbine-powered aeroplanes either at night, in IMC or both.

(f) EVENT REPORTING. An AOC holder operating turbine-powered aeroplanes at night and/or in IMC shall report all significant failures, malfunctions, or defects to the Authority who in turn will notify the State of Design.

(g) OPERATOR PLANNING. Each AOC holder operating single-engine turbine-powered aeroplanes either at night, in IMC or both shall take account of all relevant information in the assessment of intended routes or areas of operation, including the following:

- i. The nature of the terrain to be overflown, including the potential for carrying out a safe forced landing in the event of an engine failure or major malfunction;
- ii. Weather information, including seasonal and other adverse meteorological influences that may affect the flight; and
- iii. Other criteria and limitations as specified by the Authority.

(h) Each AOC holder shall identify aerodromes or safe forced landing areas available for use in the event of engine failure and the position of these shall be programmed into the RNAV system.

*Note 1: A “safe” forced landing in this context means a landing in an area in which it can reasonably be expected will not lead to serious injury or loss of life, even though the aeroplane may incur extensive damage.*

*Note 2: Operation over routes and in weather conditions that permit a safe forced landing in the event of an engine failure, as specified in paragraph 8.7.2.3(1) of this part is not required for aeroplanes approved in accordance with paragraph 8.7.2.3.(4)(c)(i) of this part. The availability of forced landing areas at all points along a route is not specified for these aeroplanes because of the very high engine reliability, additional systems and operational equipment, procedures, and training requirements specified in IS 8.7.2.3.*

(i) FLIGHT CREW EXPERIENCE, TRAINING AND CHECKING. No person may serve as, and no AOC holder shall use, a flight crew member in single-engine turbine-powered aeroplanes engaged in commercial air transport unless he or she has completed the appropriate flight crew member training as specified in this part and approved by the Authority. The AOC holder’s approved flight crew training and checking shall be appropriate to night and/or IMC operations by single-engine turbine-powered aeroplanes, covering normal, abnormal, and emergency procedures and, in particular, engine failure, including descent to a forced landing in night and/or in IMC conditions.

(j) ROUTE LIMITATIONS OVER WATER.

- i. An AOC holder shall not conduct over-water operations using single-engine turbine-powered aeroplanes operating either at night, in IMC or both except in areas of operation or over specific routes identified in the AOC holder's operations specifications.
  - ii. No AOC holder may conduct over water operations using single-engine turbine-powered aeroplanes operating either at night, in IMC or both except in accordance with procedures approved by the Authority in the AOC holder's OM for over-water operations covering flight beyond gliding distance from an area suitable for a safe forced landing/ditching having regard to the characteristics of the aeroplane, seasonal weather influences, including likely sea state and temperature, and the availability of search and rescue services.
- (k) OPERATOR CERTIFICATION OR VALIDATION. An AOC holder applying for operations specifications granting authorisation to conduct single-engine turbine-powered aeroplane operations either at night, in IMC or both shall demonstrate to the Authority, consistent with Part 9 of these regulations, the ability to conduct operations by single-engine turbine-powered aeroplanes either at night, in IMC or both through a certification and approval process specified by the Authority.

**IS:8.7.2.2 (2) -GENERAL – ROTORCRAFT CLASS 1, 2, AND 3 CODE OF PERFORMANCE**

(1) The following guidance material is the basis of the code of helicopter performance referenced in Part 8, Subpart: 8.7.2 - Aircraft Used in Commercial Air Transport.

(2) Definitions:

**(a) Category A.** With respect to helicopters, means a multi-engined helicopter designed with engine and system isolation features and capable of operations using take-off and landing data scheduled under a critical engine failure concept which assures adequate designated surface area and adequate performance capability for continued safe flight or safe rejected take-off.

**(b) Category B.** With respect to helicopters, means a single engine or multi-engined helicopter which does not meet Category A standards. Category B helicopters have no guaranteed capability to continue safe flight in the event of an engine failure, and a forced landing is assumed

(3) General guidance:

(a) Helicopters operating in performance Classes 1 and 2 should be certificated in Category A

- (b) Helicopters operating in performance Class 3 should be certificated in either Category A or Category B (or equivalent)
- (c) Except as permitted by the Authority:
  - (i) Take-off or landing from/to heliports in a congested hostile environment should only be conducted in performance Class 1
  - (ii) Operations in performance Class 2 should only be conducted with a safe forced landing capability during take-off and landing.
  - (iii) Operations in performance Class 3 should only be conducted in a non-hostile environment
- (d) The Authority may grant an exemption from the provisions of (c) (i) (ii) & (iii) upon receiving a commercial air transport operator's application for waiver and undertaking a risk assessment of the operational conditions proposed, including:
  - (i) The type of operation and the circumstances of the flight;
  - (ii) The area/terrain over which the flight is being conducted;
  - (iii) The probability of a critical power-unit failure and the consequence of such an event;
  - (iv) The procedures to maintain the reliability of the power-unit(s);
  - (v) The training and operational procedures to mitigate the consequences of the critical power-unit failure; and
  - (vi) Installation and utilisation of a usage monitoring system.

Note1: The code of performance reflects, for the conduct of operations, both the various phases of flight and the operational environment. Attachment A the Helicopter Code of Performance Development Manual (Doc 10110) provides guidance to assist States in establishing a code of performance.

#### **IS: 8.8.1.5 ALTIMETER SETTING PROCEDURES**

- (1) **General.** The altimeter setting procedures in use conform to those contained in ICAO Doc 8168-OPS/611, Volume 1 without exception.
  - (a) Transition altitudes are given on the instrument approach charts.
  - (b) QNH reports and temperature information for use in determining adequate terrain clearance are available on request from Air Traffic Service Units (ATSU). QNH values given are rounded down to the nearest whole hPa.

**Note:** Refer to General Rules and Procedures in Aeronautical Information Publication (AIP) ENR 1.7

- (2) **Cruising Levels.** When complying with the cruising levels in Annex 2, Appendix C, aircraft shall fly at Flight Levels corresponding to the magnetic track as shown in the following table.

(3) The lowest usable flight level is determined by the atmospheric pressure in the area of operation as shown in the following table.

| <b>Current Altimeter Setting</b> | <b>Lowest Usable Flight Level</b> |
|----------------------------------|-----------------------------------|
| 29.92 (or higher)                | 180                               |
| 29.91 through 29.42              | 185                               |
| 29.41 through 28.92              | 190                               |
| 28.91 through 28.42              | 195                               |
| 28.41 through 27.92              | 200                               |
| 27.91 through 27.42              | 205                               |
| 27.41 through 26.92              | 210                               |

#### **IS 8.8.1.8 AERODROME OPERATING MINIMA**

(1) Each operator establishing aerodrome-operating minima shall have its method for determining such minima approved by the Authority.

(2) Each operator's method for determining aerodrome-operating minima shall accurately account for—

(a) The type, performance and handling characteristics of the aircraft and any conditions or limitations stated in the flight manual;

(b) The composition and experience of the flight crew;

(c) The dimensions and characteristics of the runways selected for use;

(d) Aircraft equipment used for navigation and aircraft control during the approach to landing and the missed approach;

(e) Obstacles in the approach and missed approach areas and the obstacle clearance altitude/height for the intended instrument approach procedures;

(f) The means used to determine and report meteorological conditions;

(g) The obstacles in the climb out areas and the necessary clearance margins.

(h) The adequacy and performance of the available visual and non-visual ground aids.

(i) The declared distances, for helicopters.

(j) the conditions prescribed in the operations specifications; and

(k) any minima that may be promulgated by the State of the Aerodrome.

**IS: 8.8.1.10 CATEGORY II AND III MANUAL**

(1) **Application for approval.** An applicant for approval of a Category II manual or an amendment to an approved Category II or III manual shall submit the proposed manual or amendment to the Authority. If the application requests an evaluation program, it shall include the following:

- (a) The location of the aircraft and the place where the demonstrations are to be conducted; and
- (b) The date the demonstrations are to commence (at least 10 days after filing the application).

(2) **Contents:** Each Category II or III manual must contain:

- (a) The registration number, make, and model of the aircraft to which it applies;
- (b) A maintenance program; and
- (c) The procedures and instructions related to recognition of DH, use of runway visual range (RVR) information, approach monitoring, the decision region (the region between the middle marker and the decision height), the maximum permissible deviations of the basic ILS indicator within the decision region, a missed approach, use of airborne low approach equipment, minimum altitude for the use of the autopilot, instrument and equipment failure warning systems, instrument failure, and other procedures, instructions, and limitations that may be found necessary by the Authority.

*Note 1: Category II approval is required to prior to obtaining Category III approval.*

**IS 8.8.1.29 INTERCEPTION OF CIVIL AIRCRAFT.**

(1) The State of Ghana shall observe the following principles regarding the interception of civil aircraft.

- (a) Interception of civil aircraft will be undertaken only as a last resort.
- (b) If undertaken, an interception will be limited to determining the identity of the aircraft, unless it is necessary to return the aircraft to its planned track, direct it beyond the boundaries of national airspace, guide it away from a prohibited, restricted or danger area or instruct it to effect a landing at a designated aerodrome.
- (c) Practice interception of civil aircraft will not be undertaken.
- (d) Navigational guidance and related information will be given to an intercepted aircraft by radiotelephony, whenever radio contact can be established.
- (e) In the case where an intercepted civil aircraft is required to land in the territory overflown, the aerodrome designated for the landing is to be suitable for the safe landing of the aircraft type concerned.

*Note: In the unanimous adoption by the 25th Session (Extraordinary) of the ICAO Assembly on 10 May 1984 of Article 3 bis to the Convention on International Civil Aviation, the*



*Contracting States have recognised that "every State must refrain from resorting to the use of weapons against civil aircraft in flight."*

- (2) The State of Ghana shall ensure that:
  - (a) A standard method has been established and made available to the public for the manoeuvring of aircraft intercepting a civil aircraft that is designed to avoid any hazard for the intercepted aircraft.
  - (b) Provision is made for the use of secondary surveillance radar or ADS-B, where available, to identify civil aircraft in areas where they may be subject to interception.
- (3) The PIC of an aircraft that is intercepted by another aircraft shall immediately:
  - (a) Follow the instructions given by the intercepting aircraft, interpreting and responding to visual signals in accordance with the specifications in item (e) below.
  - (b) Notify, if possible, the appropriate air traffic services unit.
  - (c) Attempt to establish radio communication with the intercepting aircraft or with the appropriate intercept control unit, by making a general call on the emergency frequency 121.5 MHz, giving the identity of the intercepted aircraft and the nature of the flight; and if no contact has been established and if practicable, repeating this call on the emergency frequency 243 MHz.
  - (d) If equipped with SSR transponder, select Mode A, Code 7700, unless otherwise instructed by the appropriate air traffic services unit.
  - (e) If equipped with ADS-B or ADS-C, select the appropriate emergency functionality, if available, unless otherwise instructed by the appropriate air traffic services unit.
- (4) If any instructions received by radio from any sources conflict with those given by the intercepting aircraft by visual signals, the PIC of the intercepted aircraft shall request immediate clarification while continuing to comply with the visual instructions given by the intercepting aircraft.
- (5) If any instructions received by radio from any sources conflict with those given by the intercepting aircraft by radio, the PIC of the intercepted aircraft shall request immediate clarification while continuing to comply with the radio instructions given by the intercepting aircraft.
- (6) **Radio communication during interception.** If radio contact is established during interception but communication in a common language is not possible, the PIC of each involved aircraft shall attempt to convey instructions, acknowledgement of instructions and essential information by using the phrases and pronunciations in Table 1 below and transmitting each phrase twice:

**Table 1**

| <b>Phrases for use by INTERCEPTING aircraft</b> | <b>Phrases for use by INTERCEPTED aircraft</b> |
|---|--|
|---|--|

| Phrase   | Pronunciation<br>1 | Meaning                 | Phrase                             | Pronunciation<br>1    | Meaning                              |
|--|--------------------|-------------------------|------------------------------------|-----------------------|--------------------------------------|
| CALL SIGN  | KOL SA-IN          | What is your call sign? | CALL SIGN (call sign) <sup>2</sup> | KOL SA-IN (call sign) | My call sign is (call sign)          |
| FOLLOW   | FOL-LO             | Follow me               | WILCO                              | VILL-KO               | Understood<br>Will comply            |
| DESCEND  | DEE-SEND           | Descend for landing     | CAN NOT                            | KANN NOTT             | Unable to comply                     |
| YOU LAND   | YOU LAAND          | Land at this aerodrome  | REPEAT                             | REE-PEET              | Repeat your instruction              |
| PROCEED  | PRO-SEED           | You may proceed         | AM LOST                            | AM LOSST              | Position unknown                     |
|  |                    |                         | MAYDAY                             | MAYDAY                | I am in distress                     |
|  |                    |                         | HIJACK <sup>3</sup>                | HI-JACK               | I have been hijacked                 |
|  |                    |                         | LAND.<br>(place name)              | LAAND<br>(place name) | I request to land at<br>(place name) |
|  |                    |                         | DESCEND                            | DEE-SEND              | I require descent                    |
| <p>1. In the second column, syllables to be emphasised are underlined.</p> <p>2. The call sign required to be given is that used in radiotelephone, communications with air traffic services units and corresponding to the aircraft identification in the flight plan.</p> <p>3. Circumstances may not always permit, nor make desirable, the use of the phrase "HIJACK".</p> |                    |                         |                                    |                       |                                      |

(7) The signals in Table 2 shall be used by the pilots of each involved aircraft in the event of interception. Signals initiated by intercepting aircraft and responses by intercepted aircraft.

**Table 2**

| Series | INTERCEPTING Aircraft Signals                                       | Meaning       | INTERCEPTED Aircraft Responds                                    | Meaning                  |
|--------|---|---------------|--|--------------------------|
| 1      | DAY or NIGHT ↓ Rocking aircraft and flashing navigational lights at | You have been | DAY or NIGHT ↓ Rocking aircraft. flashing navigational lights at | Understood, will comply. |

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|          |   |                                    |   |                                 |
|----------|---|------------------------------------|---|---------------------------------|
|          | <p>irregular intervals (and landing lights in the case of a helicopter) from a position slightly above and ahead of, and normally to the left of, the intercepted aircraft (or to the right if the intercepted aircraft is a helicopter) and, after acknowledgement, a slow level turn, normally to the left, (or to the right in the case of a helicopter) on the desired heading.</p> <p><i>Note: Meteorological conditions or terrain may require the intercepting aircraft to reverse the positions and direction of turn given above in Series 1.</i></p> <p><i>Note: If the intercepting aircraft is not able to keep pace with the intercepting aircraft, the latter is expected to fly a series of race-track patterns and to rock the aircraft each time it passes the intercepted aircraft.</i></p> | <p>intercepted.<br/>Follow me.</p> | <p>irregular intervals and following.</p>   |                                 |
| <b>2</b> | <p>DAY or NIGHT ↓ An abrupt break-away manoeuvre from the intercepted aircraft consisting of a climbing turn of 90 degrees or more without crossing the line of flight of the intercepted aircraft.</p>   | <p>You may proceed.</p>            | <p>DAY or NIGHT ↓Rocking the aircraft.</p>  | <p>Understood, will comply.</p> |
| <b>3</b> | <p>DAY or NIGHT ↓ Lowering landing gear (if fitted), showing steady landing lights and overflying runway in use or, if the intercepted aircraft is a helicopter, overflying the helicopter landing area. In the case of helicopters, the intercepting helicopter makes a landing approach, coming to hover near to the landing area.</p>  | <p>Land at this aerodrome.</p>     | <p>DAY or NIGHT ↓Lowering landing gear (if fitted), showing steady landing lights and following the intercepting aircraft and, if, after overflying the runway in use or helicopter landing area, landing is considered safe, proceeding to land.</p> | <p>Understood, will comply.</p> |

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|   |   |  |  |  |
|---|---|--|--|--|
| 4 | DAY or NIGHT ↓ Raising landing gear (if fitted) and flashing landing lights while passing over runway in use or helicopter landing area at a height exceeding 300 m (1000 ft) but not exceeding 600 m (2000 ft) (in the case of a helicopter, at a height exceeding 50 m (170 ft) but not exceeding 100 m (330 ft) above the aerodrome level, and continuing to circle runway in use or helicopter landing area. If unable to flash landing lights, flash any other lights available. | Aerodrome you have designated is inadequate. | DAY or NIGHT ↓ If it is desired that the intercepted aircraft follow the intercepting aircraft to an alternate aerodrome, the intercepting aircraft raises its landing gear (if fitted) and uses the Series 1 signals prescribed for intercepting aircraft.<br><br>If it is decided to release the intercepted aircraft, the intercepting aircraft uses the Series 2 signals prescribed for intercepting aircraft. | Understood, follow me.<br>Understood, you may proceed. |
| 5 | DAY or NIGHT ↓ Regular switching on and off of all available lights but in such a manner as to be distinct from flashing lights.  | Cannot comply.                               | DAY or NIGHT ↓ Use Series 2 signals prescribed for intercepting aircraft.  |  |
| 6 | DAY or NIGHT ↓ Irregular flashing of all available lights.  | In distress.                                 | DAY or NIGHT ↓ Use Series 2 signals prescribed for intercepting aircraft.  | Understood   |

**IS 8.8.2.11 UNIVERSAL AVIATION SIGNALS**

(1) **Distress signals.** The following signals used either together or separately mean that grave and imminent danger threatens, and immediate assistance is requested:

**Note:** None of the provisions in this section shall prevent the use, by an aircraft in distress, of any means at its disposal to attract attention, make known its position and obtain help.

**Note:** For full details of telecommunication transmission procedures for the distress and urgency signals, see ICAO Annex 10, Vol II Chapter 5.

**Note:** For details of the search and rescue visual signals, see ICAO Annex 12.

- (a) A signal made by radiotelegraphy or by any other signalling method consisting of the group SOS (... \_ \_ ... in the Morse Code);
- (b) A signal sent by radiotelephony consisting of the spoken word MAYDAY;
- (c) Rockets or shells throwing red lights, fired one at a time at short intervals;
- (d) A parachute flare showing a red light.

*Note: Article 41 of the ITU Radio Regulations (Nos. 3268, 3270 and 3271 refer) provides information on the alarm signals for actuating radiotelegraph and radiotelephone auto-alarm systems: 3268 The radiotelegraph alarm signal consists of a series of twelve dashes sent in one minute, the duration of each dash being four seconds and the duration of the interval between consecutive dashes one second. It may be transmitted by hand but its transmission by means of an automatic instrument is recommended. 3270 The radiotelephone alarm signal consists of two substantially sinusoidal audio frequency tones transmitted alternately. One tone shall have a frequency of 2200 Hz and the other a frequency of 1300 Hz, the duration of each tone being 250 milliseconds. 3271 The radiotelephone alarm signal, when generated by automatic means, shall be sent continuously for a period of at least thirty seconds but not exceeding one minute; when generated by other means, the signal shall be sent as continuously as practicable over a period of approximately one minute.*

(2) The following signals, used either together or separately, mean that an aircraft wishes to give notice of difficulties, which compel it to land without requiring immediate assistance:

- (a) The repeated switching on and off of the landing lights; or
- (b) The repeated switching on and off of the navigation lights in such manner as to be distinct from flashing navigation lights.

(3) The following signals, used either together or separately, mean that an aircraft has a very urgent message to transmit concerning the safety of a ship, aircraft or other vehicle, or of some person on board or within sight:

- (a) A signal made by radiotelegraphy or by any other signalling method consisting of the group XXX.
- (b) A signal sent by radiotelephony consisting of the spoken words PAN, PAN.

(4) **Visual signals used to warn an unauthorised aircraft.** By day and by night, a series of projectiles discharged from the ground at intervals of 10 seconds, each showing, on bursting, red and green lights or stars will indicate to an unauthorised aircraft that it is flying in or about to enter a restricted, prohibited, or danger area, and that the aircraft is to take such remedial action as may be necessary.

(5) **Signals for aerodrome traffic.** Aerodrome controllers shall use, and pilots shall obey the following light and pyrotechnic signals:

|              |                                   |                               |
|--------------|-----------------------------------|-------------------------------|
| <b>Light</b> | <b>From Aerodrome Control to:</b> |                               |
|              | <b>Aircraft in flight</b>         | <b>Aircraft on the ground</b> |

|   |                         |   |   |
|---|-------------------------|---|---|
| Directed towards aircraft concerned (See Figure 8. 1) | Steady green            | Cleared to land   | Cleared for take-off                      |
|   | Steady red              | Give way to other aircraft and continue circling                          | Stop                                      |
|   | Series of green flashes | Return for landing*   | Cleared to taxi                           |
|   | Series of a red flashes | Aerodrome unsafe, do not land   | Taxi clear of landing area in use         |
|   | Series of white flashes | Land at this aerodrome and proceed to apron*                              | Return to starting point on the aerodrome |
|   | Red pyrotechnic         |   | Return to starting                        |
|   | Red pyrotechnics        | Notwithstanding any previous instructions, do not land for the time being |   |

\* Clearance to land and to taxi will be given in due course.

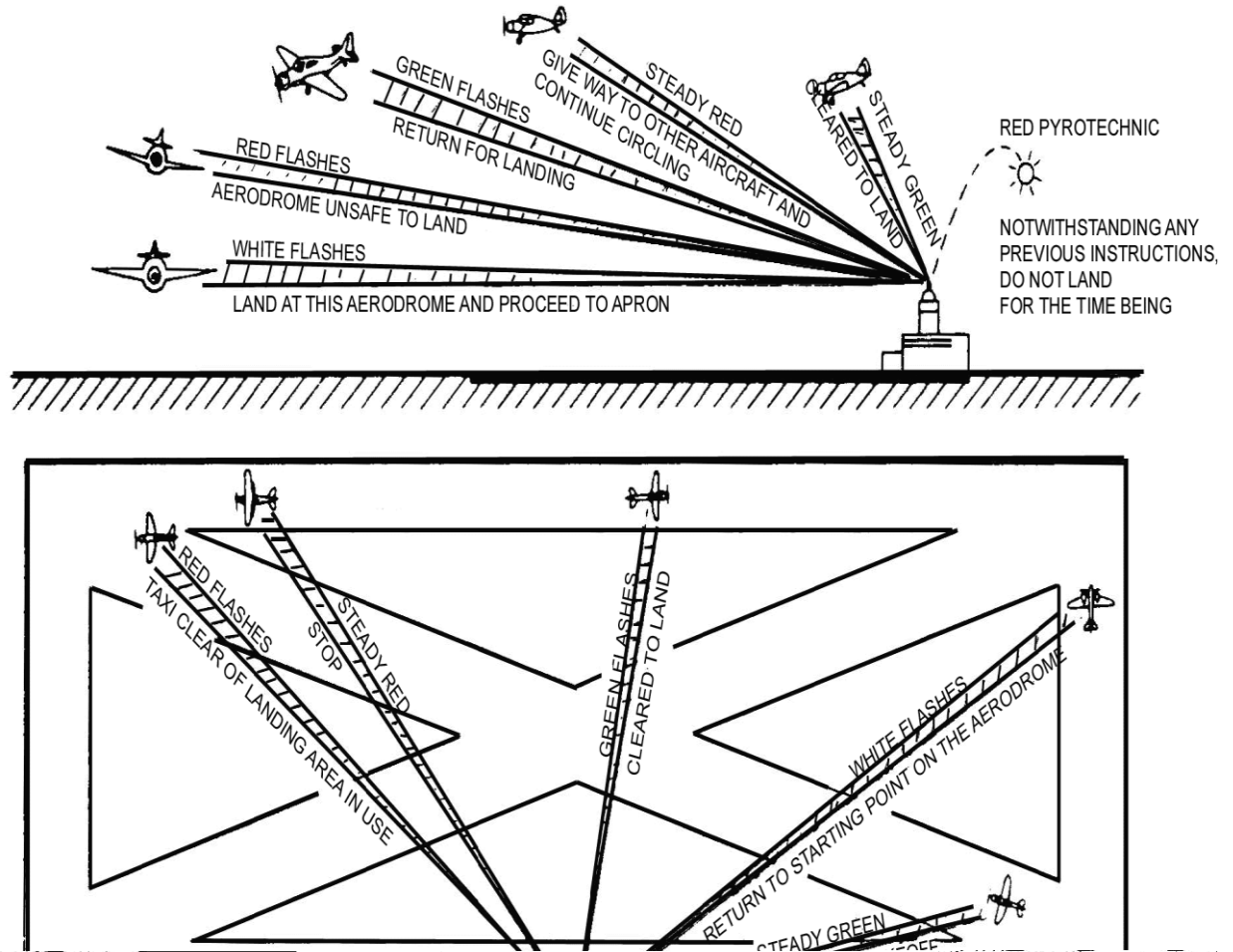


Figure 8.1

(6) Pilots shall acknowledge aerodrome controller signals as follows:

(a) When in flight:

(i) During the hours of daylight by rocking the aircraft's wings;

**Note.** - This signal should not be expected on the base and final legs of the approach.

(ii) During the hours of darkness by flashing on and off twice the aircraft's landing lights or, if not so equipped, by switching on and off twice its navigation lights.

(b) When on the ground:

(i) During the hours of daylight by moving the aircraft's ailerons or rudder;

(ii) During the hours of darkness by flashing on and off twice the aircraft's landing lights or, if not so equipped, by switching on and off twice its navigation lights

(7) Aerodrome authorities shall use the following visual ground signals shall be use during the following situations:

(a) **Prohibition of landing.** A horizontal red square panel with yellow diagonals (Figure 8.2) when displayed in a signal area indicates that landings are prohibited and that the prohibition is liable to be prolonged.

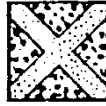


Figure 8.2

(b) **Need for special precautions while approaching or landing.** A horizontal red square panel with one yellow diagonal (Figure 8.3) when displayed in a signal area indicates that owing to the bad state of the manoeuvring area, or for any other reason, special precautions must be observed in approaching to land or in landing.

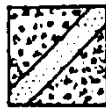


Figure 8.3

(c) **Use of runways and taxiways.**

(i) A horizontal white dumb-bell (Figure 8.4) when displayed in a signal area indicates that aircraft are required to land, take off and taxi on runways and taxiways only.

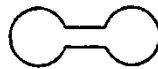


Figure 8.4

(ii) The same horizontal white dumb-bell as in Figure 8.4, but with a black bar placed perpendicular to the shaft across each circular portion of the dumb-bell (Figure 8.5) when displayed in a signal area indicates that aircraft are required to land and take off on runways only, but other manoeuvres need not be confined to runways and taxiways

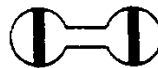


Figure 8.5

(d) **Closed runways or taxiways.** Crosses of a single contrasting colour, yellow or white (Figure 8.6), displayed horizontally on runways and taxiways or parts thereof indicate an area unfit for movement of aircraft.



Figure 8.6

(e) **Directions for landing or take-off.**

(i) A horizontal white or orange landing T (Figure 8.7) indicates the direction to be used by aircraft for landing and rake-off, which shall be in a direction parallel to the shaft of the T towards the cross arm.

**Note:** When used at night, the landing T is either illuminated or outlined in white coloured lights.



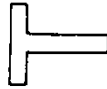


Figure 8.7

(ii) A set of two digits (Figure 8.8) displayed vertically at or near the aerodrome control tower indicates to aircraft on the manoeuvring area the direction for take-off, expressed in units of 10 degrees to the nearest 10 degrees of the magnetic compass.



Figure 8.8

(f) **Right-hand traffic.** When displayed in a signal area, or horizontally at the end of the runway or strip in use, a right-hand arrow of conspicuous colour (Figure 8.9) indicates that turns are to be made to the right before landing and after take-off.

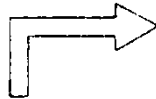


Figure 8.9

(g) **Air traffic services reporting office.** The letter C displayed vertically in black against a yellow background (Figure 8.10) indicates the location of the air traffic services reporting office.

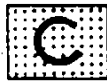


Figure 8.10

(h) **Glider flights in operation.** A double white cross displayed horizontally (Figure 8.11) in the signal area indicates that the aerodrome is being used by gliders and that glider flights are being performed.



Figure 8.11

(i) The following marshalling signals shall be used from a signalman to an aircraft.

**Note:** These signals are designed for use by the signalman, with hands illuminated as necessary to facilitate observation by the pilot, and facing the aircraft in a position:

A. For fixed-wing aircraft, the signalman shall be positioned forward of the left-wing tip within view of the pilot and, for helicopters, where the signalman can best be seen by the pilot.

**Note:** The meaning of the relevant signals remains the same if bats, illuminated wands or torchlights are held.

**Note:** The aircraft engines are numbered, for the signalman facing the aircraft, from right to left (i.e. No. 1 engine being the port outer engine).

**Note:** Signals marked with an asterisk are designed for use to hovering helicopters.

B. Prior to using the following signals, the signalman shall ascertain that the area within which an aircraft is to be guided is clear of objects which the aircraft might otherwise strike.

**Note:** The design of many aircraft is such that the path of the wing tips, engines and other extremities cannot always be monitored visually from the flight deck while the aircraft is being manoeuvred on the ground.

(j) **Signals from the pilot of an aircraft to a signalman.** The PIC or CP shall use the following signals when communicating with a signalman:

**Note:** These signals are designed for use by a pilot in the cockpit with hands plainly visible to the signalman and illuminated as necessary to facilitate observation by the signalman.

**Note:** The aircraft engines are numbered in relation to the signalman facing the aircraft, from right to left (i.e. No.1 engine being the port outer engine).

A. **Brakes engaged:** raise arm and hand, with fingers extended, horizontally in front of face, then clench fist.

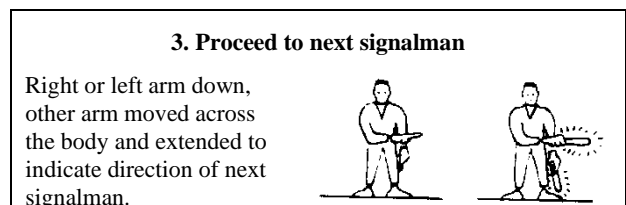
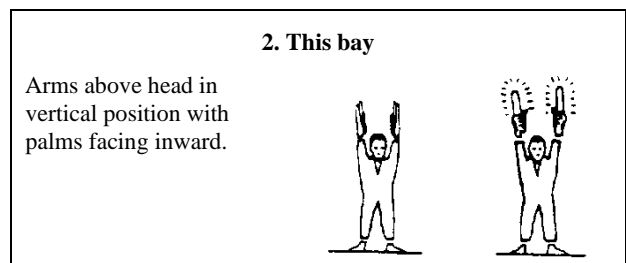
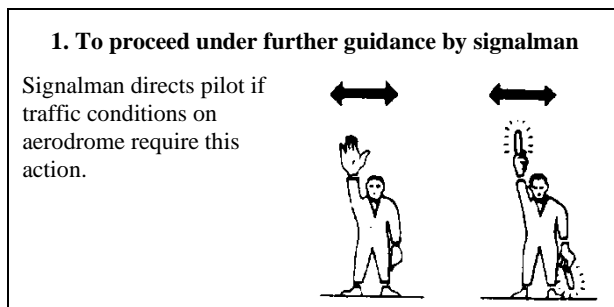
B. **Brakes released:** raise arm, with fist clenched, horizontally in front of face, then extend fingers.

**Note:** The moment the fist is clenched, or the fingers are extended indicates, respectively, the moment of brake engagement or release.

C. **Insert chocks:** arms extended, palms outwards, move hands inwards to cross in front of face.

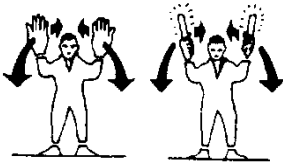
D. **Remove chocks:** hands crossed in front of face, palms outwards, move arms outwards.

E. **Ready to start engine(s):** Raise the appropriate number of fingers on one hand indicating the number of the engine to be started.



**4. Move ahead**

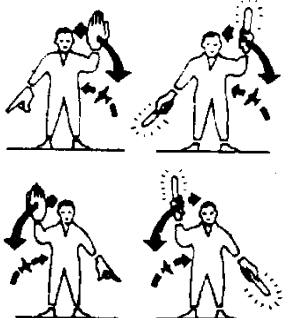
Arms a little aside, palms facing backward and repeatedly moved upward-backward from shoulder height.



**5. Turn**

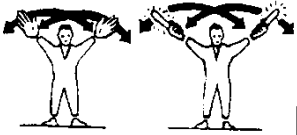
a) *Turn to your left:* right arm downward, left arm repeatedly moved upward-backward. Speed of arm movement indicating rate of turn.

b) *Turn to your right:* left arm downward, right arm repeatedly moved upward-backward. Speed of arm movement indicating rate of turn.



**6. Stop**

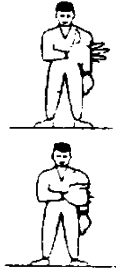
Arms repeatedly crossed above head (the rapidity of the arm movement should be related to the urgency of the stop, i.e. the faster the movement the quicker the stop).



**7. Brakes**

a) *Engage brakes.* raise arm and hand, with fingers extended, horizontally in front of body, then clench fist.

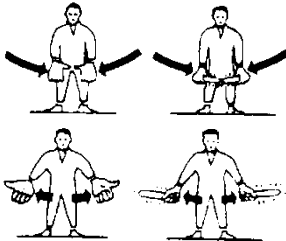
b) *Release brakes.* raise arm, with fist clenched, horizontally in front of body, then extend fingers.



**8. Chocks**


a) *Chocks inserted:* arms down, palms facing inwards, move arms from extended position inwards.

b) *Chocks removed:* arms down, palms facing outwards, move arms outwards.



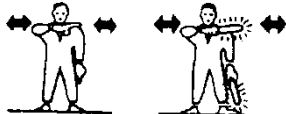
**9. Start engine(s)**

Left hand overhead with appropriate number of fingers extended, to indicate the number of the engine to be started, and circular motion of right hand at head level.



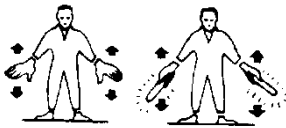
**10. Cut engines**

Either are and hand level with shoulder, hand across throat, palm downward. The hand is moved sideways with the arm remaining bent.



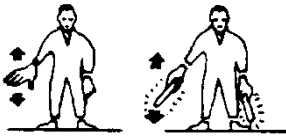
**11. Slow down**

Arms down with palms toward ground, then moved up and down several times.



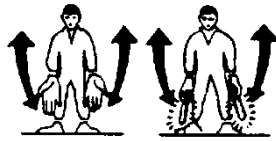
**12. Slow down engine(s) on indicated side**

Arms down with palms toward ground, then either *right or left* hand waved up and down indicating the *left or right* side engine(s) respectively should be slowed down.



**13. Move back**

Arms by sides, palms facing forward, swept forward and upward repeatedly to shoulder height.



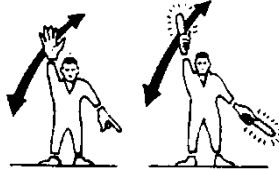
**\*18. Move downwards**

Arms extended horizontally to the side beckoning downwards, with palms turned down. Speed of movement indicates rate of descent.

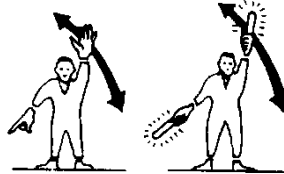


**14. Turns while backing**

a) For tail to starboard: point left arm down, and right arm brought from overhead, vertical position to horizontal forward position, repeating right arm movement.

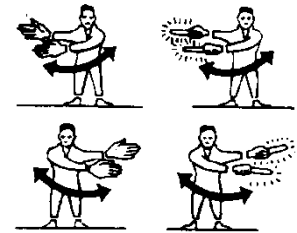


b) For tail to port: point right arm down, and left arm brought from overhead, vertical position to horizontal forward position, repeating left arm movement.



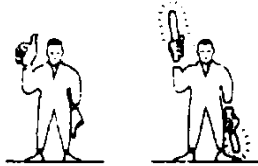
**\* 19. Move horizontally**

Appropriate arm extended horizontally sideways in direction of movement and other arm moved in front of body in same direction, in a repeating movement.



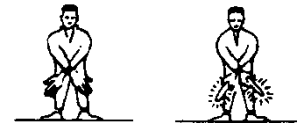
**15. All clear**

Right arm raised at elbow with thumb erect.



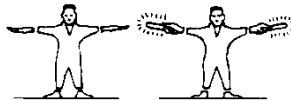
**\*20. Land**

Arms crossed and extended downwards in front of the body



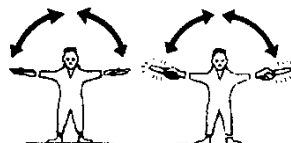
**16. Hover**

Arms extended horizontally sideways.



**\*17. Move upwards**

Arms extended horizontally to the side beckoning upwards, with palms turned up. Speed of movement indicates rate of ascent.



**IS 8.8.3.4 TABLE OF CRUISING LEVELS**

(1) The cruising levels at which a flight or a portion of a flight is to be conducted shall be in terms of:

(a) Flight levels, for flights at or above the lowest usable flight level or, where applicable, above the transition altitude;

(b) Altitudes, for flights below the lowest usable flight level or, where applicable, at or below the transition altitude.

(2) The PIC shall observe the following cruising levels in areas where, on the basis of regional air navigation agreement and in accordance with conditions specified therein, a vertical separation minimum (VSM) of 300 m (1000 ft) is applied between FL 290 and FL 410 inclusive.\*

| <u>TRACK**</u>                     |        |       |             |          |       |                                    |          |       |             |          |       |
|------------------------------------|--------|-------|-------------|----------|-------|------------------------------------|----------|-------|-------------|----------|-------|
| From 000 Degrees to 179 Degrees*** |        |       |             |          |       | From 180 Degrees to 359 Degrees*** |          |       |             |          |       |
| IFR Flights                        |        |       | VFR Flights |          |       | IFR Flights                        |          |       | VFR Flights |          |       |
| Altitude                           |        |       | FL          | Altitude |       | FL                                 | Altitude |       | FL          | Altitude |       |
| FL                                 | Meters | Feet  |             | Meters   | Feet  |                                    | Meters   | Feet  |             | Meters   | Feet  |
| -90                                | -      | -     | -           | -        | -     | 0                                  | -        | -     | -           | -        | -     |
| 10                                 | 300    | 1000  | -           | -        | -     | 20                                 | 600      | 2000  | -           | -        | -     |
| 30                                 | 900    | 3000  | 35          | 1050     | 3500  | 40                                 | 1200     | 4000  | 45          | 1350     | 4500  |
| 50                                 | 1500   | 5000  | 55          | 1700     | 5500  | 60                                 | 1850     | 6000  | 65          | 2000     | 6500  |
| 70                                 | 2150   | 7000  | 75          | 2300     | 7500  | 80                                 | 2450     | 8000  | 85          | 2600     | 8500  |
| 90                                 | 2750   | 9000  | 95          | 2900     | 9500  | 100                                | 3050     | 10000 | 105         | 3200     | 10500 |
| 110                                | 3350   | 11000 | 115         | 3500     | 11500 | 120                                | 3650     | 12000 | 125         | 3800     | 12500 |
| 130                                | 3950   | 13000 | 135         | 4100     | 13500 | 140                                | 4250     | 14000 | 145         | 4400     | 14500 |
| 150                                | 4550   | 15000 | 155         | 4700     | 15500 | 160                                | 4900     | 16000 | 165         | 5050     | 16500 |
| 170                                | 5200   | 17000 | 175         | 5350     | 17500 | 180                                | 5500     | 18000 | 185         | 5650     | 18500 |
| 190                                | 5800   | 19000 | 195         | 5950     | 19500 | 200                                | 6100     | 20000 | 205         | 6250     | 20500 |
| 210                                | 6400   | 21000 | 215         | 6550     | 21500 | 220                                | 6700     | 22000 | 225         | 6850     | 22500 |
| 230                                | 7000   | 23000 | 235         | 7150     | 23500 | 240                                | 7300     | 24000 | 245         | 7450     | 24500 |
| 250                                | 7600   | 25000 | 255         | 7750     | 25500 | 260                                | 7900     | 26000 | 265         | 8100     | 26500 |
| 270                                | 8250   | 27000 | 275         | 8400     | 27500 | 280                                | 8550     | 28000 | 285         | 8700     | 28500 |
| 290                                | 8850   | 29000 | 300         | 9150     | 30000 | 310                                | 9450     | 31000 | 320         | 9750     | 32000 |
| 330                                | 10050  | 33000 | 340         | 10350    | 34000 | 350                                | 10650    | 35000 | 360         | 10950    | 36000 |
| 370                                | 11300  | 37000 | 380         | 11600    | 38000 | 390                                | 11900    | 39000 | 400         | 12200    | 40000 |
| 410                                | 12500  | 41000 | 420         | 12800    | 42000 | 430                                | 13100    | 43000 | 440         | 13400    | 44000 |
| 450                                | 13700  | 45000 | 460         | 14000    | 46000 | 470                                | 14350    | 47000 | 480         | 14650    | 48000 |
| 490                                | 14950  | 49000 | 500         | 15250    | 50000 | 510                                | 15550    | 51000 | 520         | 15850    | 52000 |
| etc.                               | etc.   | etc.  | etc.        | etc.     | etc.  | etc.                               | etc.     | etc.  | etc.        | etc.     | etc.  |

\* Except when, on the basis of regional air navigation agreements, a modified table of cruising levels based on a nominal vertical separation minimum of 300 m (1000 ft) is prescribed for use, under specified conditions, by aircraft operating above FL 410 within designated portions of the airspace.

\*\* Magnetic track, or in polar areas at latitudes higher than 70 degrees and within such extensions to those areas as may be prescribed by the appropriate ATS authorities, grid tracks as determined by a network of lines parallel to the Greenwich

Meridian superimposed on a polar stereographic chart in which the direction towards the North Pole is employed as the Grid North.

\*\*\*Except where, on the basis of regional air navigation agreements, from 090 to 269 degrees and from 270 to 089 degrees is prescribed to accommodate predominant traffic directions and appropriate transition procedures to be associated therewith are specified.

#### IS: 8.9.2.11 EXIT ROW SEATING

- (1) No cabin crew may seat a person in a passenger exit seat if it is likely that the person would be unable to perform one or more of the applicable functions listed below-
- (a) The person lacks sufficient mobility, strength, or dexterity in both arms and hands, and both legs-
    - (i) To reach upward, sideways, and downward to the location of emergency exit and exit-slide operating mechanisms;
    - (ii) To grasp and push, pull, turn, or otherwise manipulate those mechanisms;
    - (iii) To push, shove, pull, or otherwise open emergency exits;
    - (iv) To lift out, hold, deposit on nearby seats, or manoeuvre over the seatbacks to the next row objects the size and mass of over-wing window exit doors;
    - (v) To remove obstructions of size and mass similar to over-wing exit doors;
    - (vi) To reach the emergency exit expeditiously;
    - (vii) To maintain balance while removing obstructions;
    - (viii) To exit expeditiously;
    - (ix) To stabilise an escape slide after deployment; or
    - (x) To assist others in getting off an escape slide;
  - (b) The person is less than 15 years of age or lacks the capacity to perform one or more of the applicable functions listed above without the assistance of an adult companion, parent, or other relative;
  - (c) The person lacks the ability to read and understand instructions required by this section and related to emergency evacuation provided by the AOC holder in printed or graphic form or the ability to understand oral crew commands;
  - (d) The person lacks sufficient visual capacity to perform one or more of the above functions without the assistance of visual aids beyond contact lenses or eyeglasses;
  - (e) The person lacks sufficient aural capacity to hear and understand instructions shouted by cabin crew, without assistance beyond a hearing aid;
  - (f) The person lacks the ability adequately to impart information orally to other passengers; or
  - (g) The person has a condition or responsibilities, such as caring for small children, that might prevent the person from performing one or more of the functions listed above; or a condition that might cause the person harm if he or she performs one or more of the functions listed above.
- (2) Determinations as to the suitability of each person permitted to occupy an exit seat shall be made by the cabin crew or other persons designated in the AOC holder's operations manual.

- (3) In the event a cabin crew determines that a passenger assigned to an exit seat would be unable to perform the emergency exit functions, or if a passenger requests a non-exit seat, the cabin crew shall expeditiously relocate the passenger to a non-exit seat.
- (4) In the event of full booking in the non-exit seats, and if necessary to accommodate a passenger being relocated from an exit seat, the cabin crew shall move a passenger who is willing and able to assume the evacuation functions, to an exit seat.
- (5) Each AOC ticket agent shall, prior to boarding, assign seats consistent with the passenger selection criteria and the emergency exit functions, to the maximum extent feasible.
- (6) Each AOC ticket agent shall make available for inspection by the public at all passenger loading gates and ticket counters at each aerodrome where it conducts passenger operations, written procedures established for making determinations in regard to exit row seating.
- (7) Each cabin crew shall include in their passenger briefings a request that a passenger identify himself or herself to allow reseating if he or she-
- a) Cannot meet the selection criteria;
  - b) Has a non-discernible condition that will prevent him or her from performing the evacuation functions;
  - c) May suffer bodily harm as the result of performing one or more of those functions; or
  - d) Does not wish to perform emergency exit functions.
- (8) Each cabin crew duties shall include in the passenger briefings a reference to the passenger information cards and the functions to be performed in an emergency exit.
- (9) Each passenger shall comply with instructions given by a crew member or other authorised employee of the AOC holder implementing exit seating restrictions.
- (10) No PIC may allow taxi or pushback unless at least one required crew member has verified that all exit rows and escape paths are unobstructed and that no exit seat is occupied by a person the crew member determines is likely to be unable to perform the applicable evacuation functions.
- (11) The procedures required by this standard will not become effective until final approval is granted by the Authority. Approval will be based solely upon the safety aspects of the AOC holder's procedures. In order to comply with this standard AOC holders shall-
- a) Establish procedures that address the requirements of this standard; and
  - b) Submit their procedures for preliminary review and approval to the Authority

**IS: 8.9.2.15 CARRIAGE OF CARGO IN PASSENGER COMPARTMENTS**

- (1) Cargo may be carried anywhere in the passenger compartment if it is carried in an approved cargo bin that meets the following requirements-
- a) The bin must withstand the load factors and emergency landing conditions applicable to the passenger seats of the aeroplane in which the bin is installed, multiplied by a factor of 1.15, using the combined mass of the bin and the maximum mass of cargo that may be carried in the bin;
  - b) The maximum mass of cargo that the bin is approved to carry and any instructions necessary to insure proper mass distribution within the bin must be conspicuously marked on the bin;
  - c) The bin may not impose any load on the floor or other structure of the aeroplane that exceeds the load limitations of that structure;
  - d) The bin must be attached to the seat tracks or to the floor structure of the aeroplane, and its attachment must withstand the load factors and emergency landing conditions applicable to the passenger seats of the aeroplane in which the bin is installed, multiplied by either the factor 1.15 or the seat attachment factor specified for the

aeroplane, whichever is greater, using the combined mass of the bin and the maximum mass of cargo that may be carried in the bin;

- e) The bin may not be installed in a position that restricts access to or use of any required emergency exit, or of the aisle in the passenger compartment;
- f) The bin must be fully enclosed and made of material that is at least flame resistant;
- g) Suitable safeguards must be provided within the bin to prevent the cargo from shifting under emergency landing conditions; and
- h) The bin may not be installed in a position that obscures any passenger's view of the "seat belt" sign, "no smoking" sign, or any required exit sign, unless an auxiliary sign or other approved means for proper notification of the passenger is provided.

(2) Cargo, including carry-on baggage, may be carried anywhere in the passenger compartment of a small (Group B) aeroplane if it is carried in an approved cargo rack, bin, or compartment installed in or on the aeroplane, if it is secured by an approved means, or if it is carried in accordance with each of the following-

- a) For cargo, it is properly secured by a safety belt or other tie-down having enough strength to eliminate the possibility of shifting under all normally anticipated flight and ground conditions, or for carry-on baggage, it is restrained so as to prevent its movement during air turbulence;
- b) It is packaged or covered to avoid possible injury to occupants;
- c) It does not impose any load on seats or in the floor structure that exceeds the load limitation for those components;
- d) It is not located in a position that obstructs the access to, or use of, any required emergency or regular exit, or the use of the aisle between the crew and the passenger compartment, or is located in a position that obscures any passenger's view of the "seat belt" sign, "no smoking" sign or placard, or any required exit sign, unless an auxiliary sign or other approved means for proper notification of the passengers is provided;
- e) It is not carried directly above seated occupants.
- f) It is stowed in compliance with these restrictions during take-off and landing.
- g) For cargo-only operations, the cargo is loaded so that at least one emergency or regular exit is available to provide all occupants of the aeroplane a means of unobstructed exit from the aeroplane if an emergency occurs.

#### **IS: 8.10.9 COMPANY PROCEDURES INDOCTRINATION**

(a) Each AOC holder shall ensure that all operations personnel are provided company indoctrination training that covers the following areas:

- (1) AOC holder's organisation, scope of operation, and administrative practices as applicable to their assignments and duties.
- (2) Appropriate provisions of these Directives and other applicable Directives and guidance materials.
- (3) Contents of the AOC holder's certificate and operations specifications (not required for cabin crew)
- (4) AOC holder policies and procedures.
- (5) Crew member and flight operations officer duties and responsibilities.
- (6) AOC holder testing programme for alcohol and narcotic psychoactive substances
- (7) Applicable crew member manuals.



- (8) Appropriate portions of the AOC holders’ operations manual.
- (b) The AOC holder shall provide a minimum of 40 programmed hours of instruction for company procedures indoctrination training unless a reduction is determined appropriate by the Authority.

**IS: 8.10.10 INITIAL DANGEROUS GOODS TRAINING**

- (1) Each AOC holder shall establish, maintain, and have approved by the Authority, staff training programmes, as required by the Technical Instructions.
- (2) Each AOC holder not holding a permanent approval to carry dangerous goods shall ensure that—
  - a) Staff who are engaged in general cargo handling have received training to carry out their duties in respect of dangerous goods which covers as a minimum, the areas identified in Column I of Table I to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods and how to identify such goods.
  - b) Crew members, passenger handling staff, and security staff employed by the AOC holder who deal with the screening of a passengers and their baggage, have received training which covers as a minimum, the areas identified in **Column 2 of Table I** to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods, how to identify them and what requirements apply to the carriage of such goods by passengers.

Table 1

| <b>Areas of Dangerous Goods Training</b>        | <b>1</b> | <b>2</b> |
|---|----------|----------|
| General Philosophy                              | x        | x        |
| Limitations on Dangerous Goods in Air Transport | x        | x        |
| Package Marking and Labelling                   | x        | x        |
| Dangerous Goods in Passengers’ Baggage          |          | x        |
| Emergency Procedures                            |          | x        |

Note: x indicates an area to be covered

- (3) Each AOC holder not holding a permanent approval to carry dangerous goods shall ensure that—
  - a) Staff who are engaged in the acceptance of dangerous goods have received training and are qualified to carry out their duties which covers as a minimum, the areas identified in Column I of Table 2 to a depth sufficient to ensure the staff can take decisions on the acceptance or refusal of dangerous goods offered for carriage by air.
  - b) Staff who are engaged in ground handling, storage and loading of dangerous goods have received training to enable them to carry out their duties in respect of dangerous goods which covers as a minimum, the areas identified in Column 2 of Table 2 to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods, how to identify such goods and how to handle and load them.

c) Staff who are engaged in general cargo handling have received training to enable them to carry out their duties in respect of dangerous goods which covers as a minimum, the areas identified in Column 3 of Table 2 to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods, how to identify such goods and how to handle and load them.

d) Flight crew members have received training which covers as a minimum, the areas identified in Column 4 of Table 2 to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods and how they should be carried on an aircraft.

e) Passenger handling staff; security staff employed by the operator who deal with the screening of passengers and their baggage; and crew members other than flight crew members, have received training which covers as a minimum, the areas identified in Column 5 of Table 2 to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods and what requirements apply to the carriage of such goods by passengers or, more generally, their carriage on an aircraft.

(4) Each AOC holder shall ensure that all staff who requires dangerous goods training receives recurrent training at intervals of no longer than 2 years.

(5) Each AOC holder shall ensure that records of dangerous goods training are maintained for all staff trained in accordance with paragraph (4).

(6) Each AOC holder shall ensure that its handling agent's staff are trained in accordance with the applicable column of Table I or Table 2.

**Table 2**

| <b>Areas of Training</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
|--|----------|----------|----------|----------|----------|
| General Philosophy   | x        | x        | x        | x        | x        |
| Limitations on Dangerous Goods in Air Transport                  | x        | x        | x        | x        | x        |
| Classification and list of Dangerous Goods                       | x        | x        |          | x        |          |
| General Packing Requirements and Packing Instructions            | x        |          |          |          |          |
| Packaging Specifications Marking                                 | x        |          |          |          |          |
| Package Marking and Labelling                                    | x        | x        | x        | x        | x        |
| Documentation from the Shipper                                   | x        |          |          |          |          |
| Acceptance of Dangerous Goods, including the use of a checklist  | x        |          |          |          |          |
| Loading, Restrictions on Loading and Segregation                 | x        | x        | x        | x        |          |
| Inspections for Damage or Leakage and Decontamination Procedures | x        | x        |          |          |          |
| Provision of information to Commander                            | x        | x        |          | x        |          |
| Dangerous Goods in Passengers' Baggage                           | x        |          |          | x        | x        |
| Emergency Procedures   | x        | x        |          | x        | x        |

Note: x indicates an area to be covered.

(7) An AOC holder shall provide dangerous goods training manual which contains adequate procedures and information to assist personnel in identifying packages marked or labelled as containing hazardous materials including –

a. Instructions on the acceptance, handling, and carriage of hazardous materials;

- b. Instruments governing the determination of proper shipping names and hazard classes;
- c. Packaging, labelling, and marking requirements;
- d. Requirements for shipping papers, compatibility requirements, loading, storage and handling requirements; and
- e. Restrictions.

**IS: 8.10.12 INITIAL CREW RESOURCE MANAGEMENT TRAINING**

- (1) Each AOC holder shall ensure that the flight operations officer and all aircraft crew members have CRM training as part of their initial and recurrent training requirements.
- (2) A CRM training program shall include –
  - a) An initial indoctrination/awareness segment;
  - b) A method to provide recurrent practice and feedback; and
  - c) A method of providing continuing reinforcement.
- (3) Curriculum topics to be contained in an initial CRM training course include –
  - a) Communication processes and decision behaviour;
  - b) Internal and external influences on interpersonal communications;
  - c) Barriers to communication;
  - d) Listening skills;
  - e) Decision making skills;
  - f) Effective briefings;
  - g) Developing open communications;
  - h) Inquiry, advocacy, and assertion training;
  - i) Crew self- critique;
  - j) Conflict resolution;
  - k) Team building and maintenance;
  - l) Leadership and fellowship training;
  - m) Interpersonal relationships;
  - n) Workload management;
  - o) Situational awareness;
  - p) How to prepare, plan and monitor task completions;
  - q) Workload distribution;
  - r) Distraction avoidance;
  - s) Individual factors; and
  - t) Stress reduction.

**IS: 8.10.13 INITIAL EMERGENCY EQUIPMENT DRILLS**

(1) Each aircraft crew member shall accomplish emergency training during the specified training periods, using those items of installed emergency equipment for each type of aircraft in which he or she is to serve.

(2) During initial training, each aircraft crew member shall perform the following one-time emergency drills-

a) Protective Breathing Equipment/Firefighting Drill:

(i) Locate source of fire or smoke (actual or simulated fire).

(ii) Implement procedures for effective crew co-ordination and communication, including notification of flight crew members about fire situation.

(iii) Don and activate installed PBE or approved PBE simulation device.

(iv) Manoeuvre in limited space with reduced visibility.

(v) Effectively use the aircraft's communication system.

(vi) Identify class of fire.

(vii) Select the appropriate extinguisher.

(viii) Properly remove extinguisher from securing device.

(ix) Prepare, operate and discharge extinguisher properly.

(x) Utilise correct firefighting techniques for type of fire.

b) Emergency Evacuation Drill:

(i) Recognise and evaluate an emergency.

(ii) Assume appropriate protective position.

(iii) Command passengers to assume protective position.

(iv) Implement crew co-ordination procedures.

(v) Ensure activation of emergency lights.

(vi) Assess aircraft conditions.

(vii) Initiate evacuation (dependent on signal or decision).

(viii) Command passengers to release seatbelts and evacuate.

(ix) Assess exit and redirect, if necessary; to open exit, including deploying slides and commanding helpers to assist.

(x) Command passengers to evacuate at exit and run away from aircraft.

(xi) Assist special need passengers, such as handicapped, elderly, and persons in a state of panic.

(xii) Actually, exit aircraft or training device using at least one of the installed emergency evacuation slides.

**Note:** *The crew member may either observe the aeroplane exits being opened in the emergency mode and the associated exit slide/raft pack being deployed and inflated, or perform the tasks resulting in the accomplishment of these actions.*

(3) Each aircraft crew member shall accomplish additional emergency drills during initial and recurrent training, including actual performance the following emergency drills-

a. Emergency Exit Drill:

(i) Correctly pre-flight each type of emergency exit and evacuation slide or slideraft (if part of cabin crew assigned duties).

(ii) Disarm and open each type of door exit in normal mode.

(iii) Close each type of door exit in normal mode.

(iv) Arm each type of door exit in emergency mode.

(v) Open each type of door exit in emergency mode.

(vi) Use manual slide inflation system to accomplish or ensure slide or slide raft inflation.

(vii) Open each type of window exit.

(viii) Remove escape rope and position for use.

b. Hand Fire Extinguisher Drill:

(i) Pre-flight each type of hand fire extinguisher.

(ii) Locate source of fire or smoke and identify class of fire.

(iii) Select appropriate extinguisher and remove from securing device.

(iv) Prepare extinguisher for use.

(v) Actually, operate and discharge each type of installed hand fire extinguisher.

**Note 1:** *Fighting an actual or a simulated fire is not necessary during this drill.*

*Note 2: The discharge of Halon extinguishing agents during firefighting drills is not appropriate, unless a training facility is used that is specifically designed to prevent harm to the environment from the discharged Halon. When such facilities are not used, other fire extinguishing agents that are not damaging to the environment should be used during the drills.*

(vi) Utilise correct firefighting techniques for type of fire.

(vii) Implement procedures for effective crew co-ordination and communication, including notification of crew members about the type of fire situation.

c. Emergency Oxygen System Drill:

(i) Pre-flight and operation of portable oxygen devices.

(ii) Actually, operate portable oxygen bottles, including masks and tubing.

(iii) Verbally demonstrate operation of chemical oxygen generators or installed oxygen supply system.

(iv) Prepare for use and operate oxygen device properly, including donning and activation.

(v) Administer oxygen to self, passengers, and to those persons with special oxygen needs.

- (vi) Utilise proper procedures for effective crew co-ordination and communication.
- (vii) Manually open each type of oxygen mask compartment and deploy oxygen masks.
- (viii) Identify compartments with extra oxygen masks.
- (ix) Implement immediate action decompression procedures.
- (x) Reset oxygen system, if applicable.
- (xi) Pre-flight and operation of PBE.
- (xii) Activate PBE.

**Note:** Several operators equip their aircraft with approved PBE units that have approved storage pouches fastened with two metal staples at one end. However, considerations of practicality and cost compel operators to use a less durable storage pouch that lacks the staple fasteners for training purposes. As a result, pilots and cabin crew members have been surprised that opening the pouch furnished on board requires more force than opening the training pouch. The Authority should require crew member training that includes the appropriate procedures for operating PBE. In those cases where pouches with staples are used for storage of the PBE unit, special emphasis in training should highlight the difference between the training pouch and the onboard pouch. The training pouch may be easy to open, but the approved, onboard pouch may require as much as 28 pounds of force to overcome the 2 staple fasteners.

- (d) Pre-flight Device Drill:
  - (i) Pre-flight flotation device, if appropriate.
  - (ii) Don and inflate life vests.
  - (i) Remove and use flotation seat cushions.
  - (ii) Demonstrate swimming techniques using a seat cushion as installed
- (e) Ditching Drill, if applicable:

**Note:** During a ditching drill students shall perform the "prior to impact" and "after impact" procedures for a ditching, as appropriate to the specific operator's type of operation.

- (i) Implement crew co-ordination procedures, including briefing with captain to obtain pertinent ditching information and briefing cabin crew.
- (ii) Co-ordinate time frame for cabin and passenger preparation.
- (iii) Adequately brief passengers on ditching procedures.
- (iv) Ensure cabin is prepared, including the securing of carry-on baggage, lavatories, and galleys.
- (v) Demonstrate how to properly deploy and inflate slide rafts.
- (vi) Remove, position, and attach slide rafts to aircraft.
- (vii) Inflate rafts.
- (viii) Use escape ropes at over wing exits.
- (ix) Command helpers to assist.
- (x) Use slides and seat cushions as floatation devices.
- (xi) Remove appropriate emergency equipment from aircraft.
- (xii) Board rafts properly.

(xiii) Initiate raft management procedures (i.e., Disconnecting rafts from aircraft, applying immediate first aid, rescuing persons in water, salvaging floating rations and equipment, deploying sea anchor, tying rafts together, activating or ensuring operation of emergency locator transmitter).

(xiv) Initiate basic survival procedures (i.e., Removing and utilising survival kit items, repairing and maintaining raft, ensuring protection from exposure, erecting canopy, communicating location, providing continued first aid, providing sustenance).

(xv) Use heaving line to rescue persons in water.

(xvi) Tie slide rafts or rafts together.

(xvii) Use life line on edge of slideraft or raft as a handhold.

(xviii) Secure survival kit items.

(f) Each aircraft crew member shall accomplish additional emergency drill requirements during initial and recurrent training including observing the following emergency drills-

(a) Life raft Removal and Inflation Drill, if applicable:

(i) Removal of a life raft from the aircraft or training device.

(ii) Inflation of a life raft.

(b) Slideraft Transfer Drill:

(i) Transfer of each type of slideraft pack from an unusable door to a usable door.

(ii) Disconnect slideraft at unusable door.

(iii) Redirect passengers to usable slideraft.

(iv) Installation and deployment of slideraft at usable door.

(c) Slide and Slideraft Deployment, Inflation, and Detachment Drill:

(i) Engage slide girt bar in floor brackets, if applicable.

(ii) Arm slide for automatic inflation.

(iii) Inflate slides with and without quick-release handle (manually and automatically).

(iv) Disconnecting slide from the aircraft for use as a flotation device.

(v) Arm slide rafts for automatic inflation.

(vi) Disconnecting slideraft from the aircraft.

(a)

(d) Emergency Evacuation Slide Drill:

(i) Open armed exit with slide or slide raft deployment and inflation.

(ii) Egress from aircraft via the evacuation slide and runaway to a safe distance.

**IS: 8.10.14(B) INITIAL AIRCRAFT GROUND TRAINING - FLIGHT CREW**

(1) Each AOC holder shall have an initial aircraft ground training curriculum for the flight crew applicable to their duties, the type of operations conducted, and aircraft flown. Instructions shall include at least the following general subjects-

(2) AOC holder's dispatch, flight release, or flight locating procedures;

(a) Principles and methods for determining mass and balance, and runway limitations for take-off;

(b) Adverse weather recognition and avoidance, and flight procedures which shall be followed when operating in the following conditions:

(i) Icing.

(ii) Fog

(iii) Turbulence

(iv) Heavy precipitation

(v) Thunderstorms

(vi) Low-level wind shear and microburst

(vii) Low visibility.

(c) Normal and emergency communications procedures and navigation equipment including the AOC holder's communications procedures and ATC clearance requirements;

(d) Navigation procedures used in area departure, en route, area arrival, approach and landing phases;

(e) Approved crew resource management training;

(f) Air traffic control systems, procedures, and phraseology;

(g) Aircraft performance characteristics during all flight regimes, including:

(i) The use of charts, tables, tabulated data and other related manual information;

(ii) Normal, abnormal, and emergency performance problems;

(iii) Meteorological and weight limiting performance factors (such as temperature, pressure, contaminated runways, precipitation, climb/runway limits);

(iv) Inoperative equipment performance limiting factors (such as MEL/CDL, inoperative antiskid);

(v) Special operational conditions (such as unpaved runways, high altitude aerodromes and drift down requirements).

(3) Each AOC holder shall have an initial aircraft ground training curriculum for the flight crew applicable to their duties, the type of operations conducted, and aircraft flown, including at least the following aircraft systems:

(a) Aircraft:

(i) Aircraft dimensions, turning radius, panel layouts, cockpit and cabin configurations.

(ii) Other major systems and components or appliances of the aircraft.

(b) Powerplants:

(i) Basic engine description.

(ii) Engine thrust ratings.

(iii) Engine components such as accessory drives, ignition, oil, fuel control, hydraulic, and bleed air features.

(c) Electrical.

(i) Sources of aircraft electrical power (engine driven generators, APU generator, and external power);



- (ii) Electrical buses;
  - (iii) Circuit breakers;
  - (iv) Aircraft battery; and
  - (v) Standby power systems.
- (d) Hydraulic.
- (i) Hydraulic reservoirs, pumps, accumulators; filters, check valves, interconnects and actuators; and
  - (ii) Other hydraulically operated components.
- (e) Fuel.
- (i) Fuel tanks (location and quantities);
  - (ii) Engine driven pumps;
  - (iii) Boost pumps;
  - (iv) System valves and cross feeds;
  - (v) Quantity indicators; and
  - (vi) Provisions for fuel jettisoning.
- (f) Pneumatic.
- (i) Bleed air sources (APU) or external ground air); and
  - (ii) Means of routing, venting and controlling bleed air via valves, ducts, chambers, and temperature and pressure limiting devices
- (g) Air conditioning and pressurisation.
- (i) Heaters, air conditioning packs, fans, and other environmental control devices;
  - (ii) Pressurisation system components such as outflow and negative pressure relief valves; and
  - (iii) Automatic, standby, and manual pressurisation controls and annunciators.
- (h) Flight controls.
- (i) Primary controls (yaw, pitch, and roll devices);
  - (ii) Secondary controls (leading/trailing edge devices, flaps, trim, and damping mechanisms);
  - (iii) Means of actuation (direct/indirect or fly by wire); and
  - (iv) Redundancy devices.
- (i) Landing gear.
- (i) Landing gear extension and retraction mechanism including the operating sequence of struts, doors, and locking devices, and brake and antiskid systems, if applicable;
  - (ii) Steering (nose or body steering gear);
  - (iii) Bogie arrangements;
  - (iv) Air/ground sensor relays; and
  - (v) Visual down lock indicators.
- (j) Ice and rain protection.
- (i) Rain removal systems; and
  - (ii) Anti-icing and/or de-icing system(s) affecting flight controls, engines, pitot static probes, fluid outlets, cockpit windows, and aircraft structures.
- (k) Equipment and furnishings.
- (i) Exits;
  - (ii) Galleys;
  - (iii) Water and waste systems;
  - (iv) Lavatories;

- (v) Cargo areas;
  - (vi) Crew member and passenger seats;
  - (vii) Bulkheads;
  - (viii) Seating and/or cargo configurations; and
  - (ix) Non-emergency equipment and furnishings.
- (l) Navigation equipment.
- (i) Flight directors;
  - (ii) Horizontal situation indicator;
  - (iii) Radio magnetic indicator;
- (b) (iv) Navigation receivers (GPS, ADF, SDF/LDA, VOR, TACAN, LORAN-C, RNAV, Marker Beacon, DME) as required for the flight operations to be conducted.
- (v) Inertial systems (INS, IRS);
  - (vi) Functional displays;
  - (vii) Fault indications and comparator systems;
  - (viii) Aircraft transponders;
  - (ix) Radio altimeters;
  - (x) Weather radar; and
  - (xi) Cathode ray tube or computer generated displays of aircraft position and navigation information.
- (m) Auto flight system.
- (i) Autopilot;
  - (ii) Auto throttles;
  - (iii) Flight director and navigation systems;
  - (iv) Automatic approach tracking;
  - (v) Autoland; and
  - (vi) Automatic fuel and performance management systems.
- (n) Flight instruments.
- (i) Panel arrangement;
  - (ii) Flight instruments (attitude indicator, directional gyro, magnetic compass, airspeed indicator, vertical speed indicator, altimeters, standby instruments); and
  - (iii) Instrument power sources, and instrument sensory sources (e.g., Pitot static pressure).
- (o) Display systems.
- (i) Weather radar; and
  - (ii) Other Cathode Ray Tube (CRT) or computer generated displays (e.g., checklist, vertical navigation or longitudinal navigation displays).
- (p) Communication equipment.
- (i) VHF/HF radios;
  - (ii) Audio panels;
  - (iii) Inflight interphone and passenger address systems;
  - (iv) Voice recorder; and
  - (v) Air/ground passive communications systems (ACARS).
- (q) Warning systems.
- (i) Aural, visual, and tactile warning systems (including the character and degree of urgency related to each signal); and
  - (ii) Warning and caution annunciator systems (including ground proximity and take-off warning systems).

- (r) Fire protection.
  - (i) Fire and overheat sensors, loops, modules, or other means of providing visual and/or aural indications of fire or overheat detection;
  - (ii) Procedures for the use of fire handles, automatic extinguishing systems and extinguishing agents; and
  - (iii) Power sources necessary to provide protection for fire and overheat conditions in engines, APU, cargo bay/wheel well, cockpit, cabin and lavatories.
  
- (s) Oxygen.
  - (i) Passenger, crew, and portable oxygen supply systems;
  - (ii) Sources of oxygen (gaseous or solid);
  - (iii) Flow and distribution networks;
  - (iv) Automatic deployment systems;
  - (v) Regulators, pressure levels and gauges; and
  - (vi) Servicing requirements.
  
- (t) Lighting.
  - (i) Cockpit, cabin, and external lighting systems;
  - (ii) Power sources;
  - (iii) Switch positions; and
  - (iv) Spare lightbulb locations.
  
- (u) Emergency equipment.
  - (i) Fire and oxygen bottles;
  - (ii) First aid kits;
  - (iii) Life rafts and life preservers;
  - (iv) Crash axes;
  - (v) Emergency exits and lights;
  - (vi) Slides and slide rafts;
  - (vii) Escape straps or handles; and
  - (viii) Hatches, ladders and movable stairs.
  - (ix) Survival suits, if applicable to the operation
  
- (v) Auxiliary Power Unit (APU).
  - (i) Electric and bleed air capabilities;
  - (ii) Interfaces with electrical and pneumatic systems;
  - (iii) Inlet doors and exhaust ducts;
  - (iv) Fuel supply.
  
- (4) Each AOC holder shall have an initial aircraft ground training curriculum for the flight crew applicable to their duties, the type of operations conducted, and aircraft flown, including at least the following *aircraft systems integration items*:
  - (a) Use of checklist.
    - (i) Safety chocks;
    - (ii) Cockpit preparation (switch position and checklist flows);
    - (iii) Checklist callouts and responses; and
    - (iv) Checklist sequence.
  
  - (b) Flight planning.
    - (i) Performance limitations (meteorological, weight, and MEL/CDL items);
    - (ii) Required fuel loads;
    - (iii) Weather planning (lower than standard take-off minimums or alternate requirements).

- (c) Navigation systems.
  - (i) Pre-flight and operation of applicable receivers;
  - (ii) Onboard navigation systems; and
  - (iii) Flight plan information input and retrieval.
  
- (d) Auto flight.
  - (i) Autopilot, auto thrust, and flight director systems, including the appropriate procedures,  
normal and abnormal indications, and annunciators.
  
- (e) Cockpit familiarisation
  - (i) Activation of aircraft system controls and switches to include normal, abnormal and emergency switches; and
  - (ii) Control positions and relevant annunciators, lights, or other caution and warning systems.

**IS: 8.10.14(C) INITIAL AIRCRAFT GROUND TRAINING - CABIN CREW**

- (1) Each AOC holder shall have an initial ground training curriculum for cabin crew applicable to the type of operations conducted and aircraft flown, including at least the following *general subjects*:
  - (a) Aircraft familiarisation.
    - (i) Aircraft characteristics and description;
    - (ii) Flight deck configuration;
    - (iii) Cabin configuration;
    - (iv) Galleys;
    - (v) Lavatories; and
    - (vi) Stowage areas.
  
  - (b) Aircraft equipment and furnishings.
    - (i) Cabin crew member stations;
    - (ii) Cabin crew member panels;
    - (iii) Passenger seats;
    - (iv) Passenger service units and convenience panels;
    - (v) Passenger information signs;
    - (vi) Aircraft markings; and
    - (vii) Aircraft placard.
  
  - (c) Aircraft systems.
    - (i) Air conditioning and pressurisation system;
    - (ii) Aircraft communication systems (call, interphone and passenger address);
    - (iii) Lighting and electrical systems;
    - (iv) Oxygen systems (flight crew, observer and passenger); and
    - (v) Water system.
    - (vi) Bassinets and bayonet tables
  
  - (d) Aircraft exits.
    - (i) General information;
    - (ii) Exits with slides or slide rafts (pre-flight and normal operation);
    - (iii) Exits without slides (pre-flight and normal operations); and

- (iv) Window exits (pre-flight).
  - (e) Crew member communication and co-ordination.
    - (i) Authority of PIC;
    - (ii) Routine communication signals and procedures; and
    - (iii) Crew member briefing.
  - (f) Routine crew member duties and procedures.
    - (i) Crew member general responsibilities;
    - (ii) Reporting duties and procedures for specific aircraft;
    - (iii) Predeparture duties and procedures prior to passenger boarding;
    - (iv) Passenger boarding duties and procedures;
    - (v) Prior to movement on the surface duties and procedures;
    - (vi) Prior to take-off duties and procedures applicable to specific aircraft;
    - (vii) Inflight duties and procedures;
    - (viii) Prior to landing duties and procedures;
    - (ix) Movement on the surface and arrival duties and procedures;
    - (x) After arrival duties and procedures; and
    - (xi) Intermediate stops.
  - (g) Passenger handling responsibilities.
    - (i) Crew member general responsibilities;
    - (ii) Infants, children, and unaccompanied minors;
    - (iii) Passengers needing special assistance;
    - (iv) Passengers needing special accommodation;
    - (v) Carry-on stowage requirements;
    - (vi) Passenger seating requirements; and
    - (vii) Smoking and no smoking requirements.
  - (h) Approved Crew Resource Management (CRM) training for cabin crew.
- (2) Each AOC holder shall have an initial ground training curriculum for cabin crew applicable to the type of operations conducted and aircraft flown, including at least the following *aircraft specific emergency subjects*:
- (a) Emergency equipment.
    - (i) Emergency communication and notification systems;
    - (ii) Aircraft exits;
    - (iii) Exits with slides or slide rafts (emergency operation);
    - (iv) Slides and slide rafts in a ditching;
    - (v) Exits without slides (emergency operation);
    - (vi) Window exits (emergency operation);
    - (vii) Exits with tail cones (emergency operation);
    - (viii) Cockpit exits (emergency operation);
    - (ix) Ground evacuation and ditching equipment;
    - (x) First aid equipment;
    - (xi) Portable oxygen systems (oxygen bottles, chemical oxygen generators, protective breathing equipment (PBE));
    - (xii) Firefighting equipment;
    - (xiii) Emergency lighting systems;
    - (xiv) Universal precaution kits;
    - (xv) Automated external defibrillators
    - (xvi) Survival suits, if applicable to the operation;
    - (xvii) Additional emergency equipment.

- (b) Emergency assignments and procedures.
  - (i) General types of emergencies specific to aircraft including crew coordination and communication;
  - (ii) Emergency communication signals and procedures;
  - (iii) Rapid decompression;
  - (iv) Insidious decompression and cracked window and pressure seal leaks;
  - (v) Fires;
  - (vi) Ditching;
  - (vii) Ground evacuation;
  - (viii) Unwarranted evacuation (i.e., passenger initiated);
  - (ix) Illness or injury;
  - (x) Abnormal situations involving passengers or crew members;
  - (xi) Hijacking;
  - (xii) Bomb threat;
  - (xiii) Turbulence;
  - (xiv) Other unusual situations including an awareness of other crewmembers' assignments and functions as they pertain to the cabin crew's own duties; and
  - (xviii) Previous aircraft accidents and incidents.
- (c) Aircraft specific emergency drills.
- (i) Emergency exit drill;
  - (ii) Hand fire extinguisher drill;
  - (iii) Emergency oxygen system drill;
  - (iv) Rotation device drill;
  - (v) Ditching drill, if applicable;
  - (vi) Life raft removal and inflation drill, if applicable;
  - (vii) Slideraft pack transfer drill, if applicable;
  - (viii) Slide or slideraft deployment, inflation, and detachment drill, if applicable; and
  - (ix) Emergency evacuation slide drill, if applicable.

(3) Each AOC holder shall ensure that initial ground training for cabin crew includes a competence check given by the appropriate supervisor or ground instructor to determine his or her ability to perform assigned duties and responsibilities.

(4) Each AOC holder shall ensure that initial ground training for cabin crew member consists of at least the following programmed hours of instruction based on the aircraft to be used, unless a reduction is determined appropriate by the Authority:

- (a) Piston-engined - 8 hours.
- (b) Turbopropeller-powered - 8 hours.
- (c) Turbo-jet – 16 hours.
- (d) Other aircraft, including, if applicable, helicopter and powered lift – 8 hours.

**IS: 8.10.14(D) INITIAL AIRCRAFT GROUND TRAINING-FLIGHT OPERATIONS OFFICER**

(1) Each AOC holder shall provide initial aircraft ground training for flight operations officers that include instruction in at least the following subjects:

- (a) General dispatch subjects:
  - (i) Appropriate Directives.

- (ii) Operations Manual of the AOC holder.
- (iii) Operations specifications of the AOC holder.
- (iv) Weather reports: interpretation, available sources, actual and prognostic, seasonal variations.
- (v) Communications, to include normal and emergency.
- (vi) Meteorology, to include effects on radio reception.
- (vii) Adverse weather.
- (viii) Notices to airmen.
- (ix) Navigational charts and publications.
- (x) Joint dispatcher/pilot responsibilities.
- (xi) ATC coordination procedures.
- (xii) Familiarisation with operations area, including classes of airspace and special areas of navigation.
- (xiii) Characteristics of special aerodromes.
  - (b) Aircraft characteristics:
    - (i) Aircraft specific flight preparation.
    - (ii) Aircraft operating and performance characteristics.
    - (iii) Navigation equipment, including peculiarities and limitations.
    - (iv) Instrument approach and communication equipment.
    - (v) Emergency equipment.
    - (vi) AFM or RFM provisions applicable to the aircraft duties.
    - (vii) MEL/CDL.
    - (viii) Applicable equipment training.
  - (c) Operations procedures:
    - (i) Adverse weather phenomena (wind-shear, clear air turbulence and thunderstorms).
    - (ii) Mass and balance computations and load control procedures.
    - (iii) Aircraft performance computations, to include take-off weight limitations based on departure runway, arrival runway, and en route limitations, and also engine-out limitations.
    - (iv) Flight planning procedures, to include route selection, flight time, and fuel requirements analysis.
    - (v) Dispatch release preparation.
    - (vi) Crew briefings.
    - (vii) Flight monitoring procedures.
    - (viii) MEL and CDL procedures.
    - (ix) Manual performance of all required procedures in case of the loss of automated capabilities.
    - (x) Training in appropriate geographic areas.

- (xi) ATC and instrument procedures, ground hold and central flow control procedures.
- (xii) Radio/telephone procedures.
- (d) Abnormal and emergency procedures.
- (i) Assisting flight crew in an emergency.
- (ii) Alerting of appropriate governmental, company and private agencies.
- (e) Dispatch Resource Management.

*Note: IS 8.10.12 contains CRM training items.*

- (f) Dangerous goods.

*Note: IS 8.10.10 contains dangerous goods training items.*

- (g) Security.

*Note: ICAO Doc 9811, Manual on the Implementation of the Security Provisions of Annex 6, Chapter 3, provides additional guidance.*

- (h) Differences training.

*Note: IS 8.10.17 contains items on differences training.*

(2) Each AOC holder shall ensure that initial ground training for flight operations officers includes a competency check given by an appropriately qualified dispatch supervisor or ground instructor that demonstrates the required knowledge and abilities.

(3) Each AOC holder shall ensure that initial ground training for flight operations officers consists of at least the following programmed hours of instruction based on the aircraft to be used, unless a reduction is determined appropriate by the Authority:

- (a) Piston-engined aircraft – 30 hours.
- (b) Turbo-propeller-powered aircraft – 40 hours.
- (c) Turbo-jet aircraft – 40 hours.

#### **IS: 8.10.15 INITIAL AIRCRAFT FLIGHT TRAINING**

(1) Each AOC holder shall ensure that pilot initial flight training includes at least the following training and practice in procedures related to the carrying out of pilot duties and functions. This training and practice may be accomplished either in flight or in a flight simulation training device (FSTD), as appropriate to the category and class of aircraft, and as approved by the Authority.

*Note: The flight training events for pilots listed in this IS are generic in nature for a type-rated aeroplane training curriculum conducted in a FSTD. All of the events may not apply to all aircraft (e.g., one engine inoperative landing for multi-engine versus single engine aeroplanes) or may differ in the requirements for a similar event (e.g., taxi for aeroplane, helicopter, and seaplane). Additional training events may need to be added, changed or deleted for aircraft based on aircraft category or class.*

- (a) Preparation.
  - (i) Aircraft pre-flight done by external walk around, unless the use of pictorial display is authorised by the Authority.
  - (ii) Pre-taxi procedures
  - (iii) Performance limitations.
  - (iv) Surface operation.



- (v) Pushback.
- (vi) Power back taxi, if applicable to the type of operation to be conducted.
- (vii) Starting.
- (viii) Taxi
- (ix) Pre-take-off checks.
- (b) Take-off.
  - (i) Normal.
  - (ii) Crosswind.
  - (iii) Rejected.
  - (iv) Power failure after V1.
  - (v) Lower than standard minimum, if applicable to the type of operation to be conducted.
- (c) Climb.
  - (i) Normal.
  - (ii) One-engine inoperative during climb to en route altitude.
- (d) En route.
  - (i) Steep turns.
  - (ii) Approaches to stalls (take-off, en route, and landing configurations).
  - (iii) Inflight powerplant shutdown.
  - (iv) Inflight powerplant restart.
  - (v) High speed handling characteristics.
- (e) Descent.
  - (i) Normal.
  - (ii) Maximum rate.
- (f) Approaches.
  - (i) VFR procedures.
  - (ii) Visual approach with 50% loss of power of available powerplants.
  - (iii) Visual approach with slat/flap malfunction.
  - (iv) IFR precision approaches (ILS normal and ILS with one-engine inoperative).
  - (v) IFR non-precision approaches (NDB normal and VOR normal).

*Note: Non-precision approach with one engine inoperative may include LOC back course procedures, SDF/LDA, GPS, TACAN and circling approach procedures, as applicable to the operator's authorisations.*

*Note: Simulator shall be qualified for training/checking on the circling manoeuvre.*

- (vi) Missed approach from precision approach.
- (vii) Missed approach from non-precision approach.

- (viii) Missed approach with powerplant failure.
- (g) Landings.
  - (i) Normal with a pitch mist rim (small aircraft only).
  - (ii) Normal from precision instrument approach.
  - (iii) Normal from precision instrument approach with most critical engine inoperative.
  - (iv) Normal with 50% loss of power of available powerplants.
  - (v) Normal with flap/slat malfunction.
  - (vi) Rejected landings.
  - (vii) Crosswind.
  - (viii) Manual reversion/degraded control augmentation.
  - (ix) Short/soft field (small aircraft only).
  - (x) Glassy/rough water (seaplanes only).
  - (xi) Auto-rotation (helicopter only)
- (h) After landing.
  - (i) Parking.
  - (ii) Emergency evacuation.
  - (iii) Docking, mooring, and ramping (seaplanes only).
  - (i) Other flight procedures during any airborne phase.
  - (i) Airborne Collision Avoidance System: use and avoidance manoeuvres
  - (ii) Holding.
  - (iii) Ice accumulation on airframe.
  - (iv) Air hazard avoidance.
  - (v) Wind shear/micro burst.
  - (j) Normal, abnormal and alternate systems procedures during any phase.
  - (i) Pneumatic/pressurisation.
  - (ii) Air conditioning.
  - (iii) Fuel and oil.
  - (iv) Electrical.
  - (v) Hydraulic.
  - (vi) Flight controls.
  - (vii) Anti-icing and de-icing systems.
  - (viii) Autopilot.
  - (ix) Flight management guidance systems and/or automatic or other approach and landing aids.
  - (x) Stall warning devices, stall avoidance devices, and stability augmentation systems.

- (xi) Airborne weather radar.
- (xii) Flight instrument system malfunction.
- (xiii) Communications equipment.
- (xiv) Navigation systems.
- (k) Emergency systems procedures during any phase.
  - (i) Aircraft fires.
  - (ii) Smoke control.
  - (iii) Powerplant malfunctions.
  - (iv) Fuel jettison.
  - (v) Electrical, hydraulic, pneumatic systems.
  - (vi) Flight control system malfunction.
  - (vii) Landing gear and flap system malfunction.

(2) Each AOC holder shall ensure that flight engineer flight training includes at least the following training and practice in procedures related to the carrying out of flight engineer duties and functions. This training and practice may be accomplished either in flight or in a flight simulation training device (FSTD), as approved by the Authority.

(c) *Note: The flight training events for flight engineers listed in this IS are generic in nature for a type-rated aeroplane training curriculum. Additional training events may need to be added, changed or deleted. The events listed are typically conducted in a FSTD, except as noted, and may be conducted in aircraft when appropriate*

- (a) Preparation.
  - (i) Airplane pre-flight.
  - (ii) Logbook procedures.
  - (iii) Safety checks.
  - (iv) Cabin/interiors.
  - (v) Exterior Walkaround.
  - (vi) Servicing/de-icing.
  - (vii) Use of Oxygen.
- (b) Ground Operations.
  - (i) Performance Data.
    - (A) TO/LND Data.
    - (B) Airport Analysis.
    - (C) Mass and Balance.
  - (ii) Use of Checklist.
    - (A) Panel setup.
    - (iii) Starting.
      - (A) External power.
      - (B) External Air.

- (C) APU.
- (iv) Communications.
- (A) Station Procedures.
- (B) ACARS.
- (v) Taxi.
- (c) Take-off.
- (i) Powerplant Control.
- (ii) Flaps/landing gear.
- (iii) Fuel management.
- (iv) Other Systems Operation.
- (v) Aircraft Performance.
- (vi) Checklist Completion.
- (d) Climb.
- (i) Powerplant control.
- (ii) Fuel Management.
- (iii) Pressurisation.
- (iv) Electrical System.
- (v) Air Conditioning.
- (vi) Flight Controls.
- (vii) Other Systems.
- (e) En Route.
- (i) Powerplant Operation.
- (ii) Fuel Management.
- (iii) Performance Management.
- (iv) High Altitude Performance.
- (v) Other Systems Operation.
- (f) Descent.
- (i) Powerplant operation.
- (ii) Other Systems Operation.
- (iii) Performance Management.
- (g) Approach.
- (i) Landing Data.
- (ii) Landing Gear Operation.
- (iii) Flat/Slat/Spoiler Operation.
- (iv) Approach Monitoring.
- (h) Landings.

- (i) Powerplant Operation.
  - (ii) Aircraft Configuration.
  - (iii) System Operation.
  - (A) Emergency Evacuation.
  - (i) Procedures During Any Ground or Airborne Phase.
  - (i) Cockpit Equipment.
  - (ii) Flap Slats/Gear.
  - (iii) Powerplant.
  - (iv) Pressurisation.
  - (v) Pneumatic.
  - (vi) Air Conditioning.
  - (vii) Fuel and Oil.
  - (viii) Electrical.
  - (ix) Hydraulic.
  - (x) Flight Controls.
  - (xi) Anti-Icing and De-icing.
  - (xii) Other Checklist Procedures.
- (3) Each AOC holder shall ensure that flight navigator flight training includes at least the following training and practice in procedures related to the carrying out of flight navigator duties and functions. This training and practice may be accomplished either in flight or in a flight simulation training device (FSTD), as approved by the Authority.
- (a) Initial flight training for flight navigators must include flight training and a flight check that is adequate to ensure the crew member's proficiency in the performance of his or her assigned duties.
- (b) The flight training and check specified in paragraph (1) must be performed—
- (i) In-flight or in an appropriate flight simulation training device; or
  - (ii) In commercial air transport operations, if performed under the supervision of a qualified flight navigator instructor or check navigator, as applicable.
- (4) Each AOC holder shall ensure that initial flight training for pilots and flight engineers consists of at least the following programmed hours of instruction based on the aircraft to be used, unless a reduction is determined appropriate by the Authority:
- (a) For one pilot in either an aircraft or flight simulation training devices—
    - (i) Piston-engined aircraft—PIC: 14 hours; CP: 14 hours; and FE: 12 hours.
    - (ii) Turbo-propeller-powered aircraft—PIC: 15 hours; CP: 15 hours; and FE: 12 hours.
    - (iii) Turbo-jet aircraft—PIC: 20 hours; CP: 16 hours; and FE; 12 hours.
    - (iv) Other aircraft—PIC and CP: 14 hours.
  - (b) For two pilots in a flight simulation training device—
    - (i) Piston-engined aircraft—PIC: 24 hours; CP: 24 hours; and FE: 20 hours.

- (ii) Turbo-propeller-powered aircraft—PIC: 24 hours; CP: 24 hours; and FE: 20 hours.
- (iii) Turbo-jet aircraft—PIC: 28 hours; CP: 28 hours; and FE: 20 hours.
- (iv) Other aircraft—PIC and CP: 24 hours.

*Note: Training times in item (4) of this IS are higher than in 14 CFR and are taken from the FAA national norms in FAA Order 8900.1.*

#### **IS: 8.10.16 INITIAL SPECIALISED OPERATIONS TRAINING**

(1) Each AOC holder shall provide initial specialised operations training to ensure that each pilot and flight operations officer is qualified in the type of operation in which he or she serves and in any specialised or new equipment, procedures, and techniques, such as:

- (a) Long-range navigation.
  - (i) Knowledge of specialised navigation procedures, such as MNPS, NPAC.
  - (ii) Knowledge of specialised equipment, such as INS, LORAN, GPS, GPWS, ACAS, CFIT.
- (b) CAT II and CAT III approaches
- (c) Special equipment, procedures and practice such as INS, LORAN, GPS, GPWS, ACAS, CFIT, MNPS, NPAC
- (d) A demonstration of competency
- (e) Low visibility take-off operations
  - (i) Runway and lighting requirements
  - (ii) Rejected take-offs at, or near- $V_1$  with a failure of the most critical engine
  - (iii) Taxi operations
  - (iv) Procedures to prevent runway incursions under low visibility conditions
- (f) Extended range operations with two engine aeroplanes
- (g) Airborne radar approaches
- (h) Autopilot instead of CP

#### **IS: 8.10.17 AIRCRAFT DIFFERENCES - FLIGHT OPERATIONS OFFICER**

(1) Each AOC holder shall provide aircraft differences training for flight operations officers when the operator has aircraft variances within the same type of aircraft, which includes at least the following:

- (a) Operations procedures-
  - (i) Operations under adverse weather phenomena conditions, including clear air turbulence, wind shear, and thunderstorms;

- (ii) Mass and balance computations and load control procedures;
  - (iii) Aircraft performance computations, to include take-off weight limitations based on departure runway, arrival runway, and en route limitations, and also engine-out limitations;
  - (iv) Flight planning procedures, to include route selection, flight time, and fuel requirements analysis;
  - (v) Dispatch release preparation;
  - (vi) Crew briefings;
  - (vii) Flight monitoring procedures;
  - (viii) Flight crew response to various emergency situations, including the assistance the aircraft flight operations officer can provide in each situation;
  - (ix) MEL and CDL procedures;
  - (x) Manual performance of a required procedure in case of the loss of automated capabilities;
  - (xi) Training in appropriate geographic areas;
  - (xii) ATC and instrument procedures, to include ground hold and central flow control procedures; and
  - (xiii) Radio/telephone procedures.
- (b) Emergency procedures—
- (i) Actions taken to aid the flight crew; and
  - (ii) AOC holder and Authority notification.

**IS: 8.10.19 PILOT PROFICIENCY - AIRCRAFT AND INSTRUMENT PROFICIENCY CHECKS:**

- (1) Satisfactory completion of a PIC proficiency check following completion of an approved air carrier training program for the particular type aircraft, satisfies the requirement for an aircraft type rating practical test if—
- a. That proficiency check includes all manoeuvres and procedures required for a type rating practical test; and
  - b. Proficiency checks are be conducted by an examiner approved by the Authority.
- (2) Aircraft and instrument proficiency checks for PIC and Co-Pilot must include the following operations and procedures listed in Table A. As noted, examiners may waive certain events on the flight test based on an assessment of the pilot’s demonstrated level of performance.

| <b>TYPE OF OPERATION OR PROCEDURE</b> | <b>PIC or Co-Pilot</b> | <b>Notes</b>                              |
|---------------------------------------|------------------------|---|
| <b>Ground Operations</b>              |                        |   |
| Pre-flight inspection                 | PIC/Co-Pilot           |   |
| Taxiing                               | PIC/Co-Pilot           | Both pilots may take simultaneous credit. |
| Powerplant checks                     | PIC/Co-Pilot           | Both pilots may take simultaneous credit. |
| <b>Take-offs</b>                      |                        |   |
| Normal                                | PIC/Co-Pilot           |   |
| Instrument                            | PIC/Co-                |   |

|   |              |  |
|---|--------------|--|
|   | Pilot        |  |
| Crosswind   | PIC/Co-Pilot |  |
| With powerplant failure                                 | PIC/Co-Pilot |  |
| Rejected take-off                                       | PIC/Co-Pilot | Both pilots may take simultaneous credit. May be waived.                   |
| <b>Instrument Procedures</b>                            |              |  |
| Area departure  | PIC/Co-Pilot | May be waived.   |
| Area arrival  | PIC/Co-Pilot | May be waived.   |
| Holding   | PIC/Co-Pilot | May be waived.   |
| Normal ILS approach                                     | PIC/Co-Pilot |  |
| Engine-out ILS  | PIC/Co-Pilot |  |
| Coupled ILS approach                                    | PIC/Co-Pilot | Both pilots may take simultaneous credit                                   |
| Nonprecision approach                                   | PIC/Co-Pilot |  |
| Second nonprecision approach                            | PIC/Co-Pilot |  |
| Missed approach from an ILS                             | PIC/Co-Pilot |  |
| Second missed approach                                  | PIC only     |  |
| Circling approach                                       | PIC/Co-Pilot | Only when authorized in the AOC holder's Operations Manual. May be waived. |
| <b>Inflight Manoeuvres</b>                              |              |  |
| Steep turns   | PIC only     | May be waived.   |
| Specific flight characteristics                         | PIC/Co-Pilot |  |
| Approaches to stalls                                    | PIC/Co-Pilot | May be waived.   |
| Powerplant failure                                      | PIC/Co-Pilot |  |
| 2 engine inoperative approach (3 and 4 engine aircraft) | PIC/Co-Pilot |  |
| Normal landing  | PIC/Co-Pilot |  |
| Landing from an ILS                                     | PIC/Co-Pilot |  |
| Crosswind landing                                       | PIC/Co-Pilot |  |
| Landing with engine-out                                 | PIC/Co-Pilot |  |
| Landing from circling approach                          | PIC/Co-Pilot | Only if authorized in Operations Manual. May be waived.                    |
| <b>Normal And Non-Normal Procedures</b>                 | PIC/Co-Pilot |  |



|  |                 |                        |
|--|-----------------|------------------------|
| Rejected landing                                       | PIC/Co-Pilot    |                        |
| 2 engine inoperative landing (3 and 4 engine aircraft) | PIC only        |                        |
| <b>Other Events</b>                                    | PIC or Co-Pilot | Examiner’s discretion. |

(3) The oral and flight test phases of a proficiency check should not be conducted simultaneously.

(4) When the examiner determines that an applicant's performance is unsatisfactory, the examiner may terminate the flight test immediately or, with the consent of the applicant, continue with the flight test until the remaining events are completed.

(5) If the check must be terminated (for mechanical or other reasons) and there are events which still need to be repeated, the examiner shall issue a letter of discontinuance, valid for 60 days, listing the specific areas of operation that have been successfully completed.

(6) Tolerances allowed during flight checks are as follows:

**VOR:** Radial within 2.5° on either side of track.

**LLZ:** Within 2° on either side of track (½ scale deflection) \* see note below

**NDB:** QDM within 3° on either side

**Heading** Within 15°

**ILS fly-up demand:** Maximum fly-up demand is ½ scale deflection.

\* **Note:** ½ scale deflection is ICAO terminology. On some aircraft this is about one dot deflection. As future developments are not known, ICAO terminology will be used.

**IS: 8.10.21 PAIRING OF LOW EXPERIENCE PILOTS**

- (1) Situations designated as critical by the Authority at special aerodromes designated by the Authority or at special aerodromes designated by the AOC holder include-
- (a) The prevailing visibility value in the latest weather report for the aerodrome is at or below 3/4 mile (1200m);
  - (b) The runway visual range for the runway to be used is at or below 4,000 feet(1200m);
  - (c) The runway to be used has water, snow, slush or similar conditions that may adversely affect aircraft performance;
  - (d) The braking action on the runway to be used is reported to be less than "good";
  - (e) The crosswind component for the runway to be used is in excess of 15 knots;
  - (f) Wind shear is reported in the vicinity of the aerodrome; or
  - (g) Any other condition in which the PIC determines it to be prudent to exercise the PIC's prerogative.
- (2) Circumstances which would routinely be considered for deviation from the required minimum line operating flight time include-
- (a) A newly certified AOC holder does not employ any pilots who meet the minimum flight time requirements;
  - (b) An existing AOC holder adds to its fleet a type aircraft not before proven for use in its operations; or
  - (c) An existing AOC holder establishes a new domicile to which it assigns pilots who will be required to become qualified on the aircraft operated from that domicile.

*Note: ICAO Doc 9376, Preparation of an Operations Manual, provides additional guidance.*

**IS: 8.10.22 FLIGHT ENGINEER PROFICIENCY CHECKS**

- (1) Examiners shall include during proficiency checks for flight engineers an oral or written examination of the normal, abnormal, and emergency procedures listed below:
- (a) Normal procedures—
    - (i) Interior pre-flight
    - (ii) Panel set-up
    - (iii) Fuel load
    - (iv) Engine start procedures
    - (v) Taxi and before take-off procedures
    - (vi) Take-off and climb Pressurisation
    - (vii) Cruise and fuel management
    - (viii) Descent and approach
    - (ix) After landing and securing
    - (x) Crew co-ordination
    - (xi) Situational awareness, traffic scan, etc.
    - (xii) Performance computations
    - (xiii) Anti-ice, de-ice
  - (b) Abnormal and emergency procedures—
    - (i) Troubleshooting
    - (ii) Knowledge of checklist
    - (iii) Ability to perform procedures
    - (iv) Crew co-ordination
    - (v) Minimum equipment list (MEL) and configuration deviation list (CDL)

- (vi) Emergency or alternate operation of aeroplane flight systems

**IS: 8.10.23      COMPETENCY CHECKS: CABIN CREWMEMBERS**

(1) A check cabin crewmember, approved by the Authority, shall conduct competency checks for cabin crewmembers in the following areas to demonstrate that each candidate's competency level is sufficient to successfully perform assigned duties and responsibilities.

(a) Emergency equipment, as applicable-

- (i) Emergency communication and notification systems;
- (ii) Aircraft exits;
- (iii) Exits with slides or slide rafts (emergency operation);
- (iv) Slides and slide rafts in a ditching;
- (v) Exits without slides (emergency operation);
- (vi) Window exits (emergency operation);
- (vii) Exits with tail cones (emergency operation);
- (viii) Cockpit exits (emergency operation);
- (ix) Ground evacuation and ditching equipment;
- (x) First aid equipment;
- (xi) Portable oxygen systems (oxygen bottles, chemical oxygen generators, protective breathing equipment (PBE));
- (xii) Firefighting equipment;
- (xiii) Emergency lighting systems; and
- (xiv) Additional emergency equipment.

(b) Emergency procedures-

- (i) General types of emergencies specific to aircraft;
- (ii) Emergency communication signals and procedures;
- (iii) Rapid decompression;
- (iv) Insidious decompression and cracked window and pressure seal leaks;
- (v) Fires;
- (vi) Ditching;
- (vii) Ground evacuation;
- (viii) Unwarranted evacuation (i.e., Passenger initiated);
- (ix) Illness or injury;
- (x) Abnormal situations involving passengers or crew members;
- (xi) Turbulence; and
- (xii) Other unusual situations.

(c) Emergency drills-

- (i) Location and use of all emergency and safety equipment carried on the aeroplane;
- (ii) The location and use of all types of exits;
- (iii) Actual donning of a lifejacket where fitted;
- (iv) Actual donning of protective breathing equipment; and
- (v) Actual handling of fire extinguishers.

(d) Crew Resource Management-

- (i) Decision making skills;

- (ii) Briefings and developing open communication;
  - (iii) Inquiry, advocacy, and assertion training; and
  - (iv) Workload management.
- (e) Dangerous goods-
- (i) Recognition of and transportation of dangerous goods;
  - (ii) Proper packaging, marking, and documentation; and
  - (iii) Instructions regarding compatibility, loading, storage and handling characteristics.
- (f) Security-
- (i) Hijacking; and
  - (ii) Disruptive passengers.

**IS: 8.10.24 COMPETENCY CHECKS: FLIGHT OPERATIONS OFFICERS**

- (1) A check flight operations officer, approved by the Authority, shall conduct competency checks for flight operations officers in at least the following areas to demonstrate that each candidate's competency level is sufficient to successfully perform assigned duties and responsibilities.
- (a) Use of communications systems including the characteristics of those systems and the appropriate normal and emergency procedures;
  - (b) Meteorology, including various types of meteorological information and forecasts, interpretation of weather data (including forecasting of en route and terminal temperatures and other weather conditions), frontal systems, wind conditions, and use of actual and prognostic weather charts for various altitudes;
  - (c) The NOTAM system;
  - (d) Navigational aids and publications;
  - (e) Joint dispatcher-pilot responsibilities;
  - (f) Characteristics of appropriate airports;
  - (g) Prevailing weather phenomena and the available sources of weather information;
  - (h) Air traffic control and instrument approach procedures; and
  - (i) Approved dispatcher resource management (DRM) initial training.

**IS 8.10.29 PILOT ROUTE AND AREA QUALIFICATION REQUIREMENTS**

- (1) Each pilot shall demonstrate to the operator an adequate knowledge of:
- (a) The route to be flown, and the aerodrome(s)/ heliport(s) which are to be used. This shall include knowledge of:
    - (i) The terrain and minimum safe altitudes;
    - (ii) The seasonal meteorological conditions;
    - (iii) The meteorological, communication and air traffic facilities, services and procedures;
    - (iv) The search and rescue procedures;
    - (v) The navigational facilities and procedures associated with the route along which the flight is to take place; and

(b) Procedures applicable to flight paths over heavily populated areas and areas of high density traffic, obstructions, physical layout, lighting, approach aids and arrival, departure, holding and instrument approach procedures, and applicable operating minima.

**Note:** That portion of the demonstration relating to arrival, departure, holding and instrument approach procedures may be accomplished in an approved training device.

**IS: 8.10.32 RECURRENT TRAINING: FLIGHT CREW**

(1) Each AOC holder shall establish a recurrent training program for all flight crew members in the AOC holders operations manual and shall have it approved by the Authority.

(2) Each flight crew member shall undergo recurrent training relevant to the type or variant of aircraft on which he or she is certified to operate and for the crew member position involved.

(3) Each AOC holder shall have all recurrent training conducted by suitably qualified personnel.

(4) Each AOC holder shall ensure that flight crew member recurrent ground training includes at least the following:

(a) General subjects

(i) Flight locating procedures

(ii) Principles and method for determining weight/balance and runway limitations

(iii) Meteorology to ensure practical knowledge of weather phenomena including the principles of frontal system, icing, fog, thunderstorms, wind shear, and high altitude weather situations

(iv) ATC systems and phraseology

(v) Navigation and use of navigational aids

(vi) Normal and emergency communication procedures

(vii) Visual cues before descent to MDA

(viii) Accident/incident and occurrence review

(ix) Other instructions necessary to ensure the pilot's competence.

(b) Aircraft systems and limitations

(i) Normal, abnormal, and emergency procedures

(ii) Aircraft performance characteristics

(iii) Engines and or propellers

(iv) Major aircraft systems (i.e., flight controls, electric, hydraulic and other systems as appropriate)

(v) Ground icing and de-icing procedures and requirements

(c) Emergency equipment and drills

(d) Every 12 months-

(i) Location and use of all emergency and safety equipment carded on the aeroplane;

(ii) The location and use of all types of exits;

(iii) Actual donning of a lifejacket where fitted;

(iv) Actual donning of protective breathing equipment; and

(v) Actual handling of fire extinguishers.

(e) Every 3 years-

(i) Operation of all types of exits;

(ii) Demonstration of the method used to operate a slide, where fitted; and

(iii) Fire-fighting using equipment representative of that carried in the aeroplane on an actual or simulated fire;

**Note:** *With halon extinguishers, an alternative method acceptable to the authority may be used.*

(iv) Effects of smoke in an enclosed area and actual use of all relevant equipment in a simulated smoke-filled environment;

(v) Actual handling of pyrotechnics, real or simulated, where fitted;

(vi) Demonstration in the use of the life-raft(s), where fitted;

(vii) An emergency evacuation drill;

(viii) A ditching drill, if applicable; and

(ix) A rapid decompression drill, if applicable.

(f) Crew resource management-

(i) Decision making skills;

(ii) Briefings and developing open communication;

(iii) Inquiry, advocacy, and assertion training;

(iv) Workload management; and

(v) Situational awareness.

(g) Dangerous goods-

(i) Recognition of and transportation of dangerous goods;

(ii) Proper packaging, marking, and documentation; and

(iii) Instructions regarding compatibility, loading, storage and handling characteristics.

(h) Security-

(i) Hijacking; and

(ii) Disruptive passengers.

(5) Each AOC holder shall verify knowledge of the recurrent ground training by an oral or written examination.

(6) Each AOC holder shall ensure that pilot recurrent flight training include at least the following:

*Note: Flight training may be conducted in an appropriate aircraft, adequate flight simulation training device (FSTD), or in a combination of aircraft and FSTD, as approved by the Authority.*

(a) Preparation-

(i) Visual inspection (use of pictorial display authorised); and

(ii) Pre-taxi procedures.

(b) Surface operation-

(i) Performance limitations;

(ii) Cockpit management;

(iii) Securing cargo;

(iv) Pushback;

(v) Power back taxi;

- (vi) Starting;
  - (vii) Taxi; and
  - (viii) Pre take-off checks
- 
- (c) Take-off-
    - (i) Normal;
    - (ii) Crosswind.
    - (iii) Rejected.
    - (iv) Power failure after  $V_1$ ;
    - (v) Powerplant failure during second segment; and
    - (vi) Lower than standard minimum.
- 
- (d) Climb-
    - (i) Normal; and
    - (ii) One-engine inoperative during climb to en route altitude.
- 
- (e) En route-
    - (i) Steep turns;
    - (ii) Approaches to stalls (take-off, en route, and landing configurations);
    - (iii) Inflight powerplant shutdown;
    - (iv) Inflight powerplant restart; and
    - (iv) High speed handling characteristics.
- 
- (f) Descent-
    - (i) Normal; and
    - (ii) Maximum rate.
- 
- (g) Approaches-
    - (i) VFR procedures;
    - (ii) Visual approach with 50% loss of power on one-engine (2 engines inoperative on 3-engine aeroplanes) (PIC, only);
    - (iii) Visual approach with slat/flap malfunction;
    - (iv) IFR precision approaches (ILS normal and ILS with one-engine inoperative);
    - (v) IFR non-precision approaches (NDB normal and VOR normal);
    - (vi) Non-precision approach with one engine inoperative (LOC back course, SDF/LDA, GPS, TACAN and circling approach procedures);
- . Note: A Flight Simulation Training Device shall not be used for training/checking on the circling manoeuvre unless it has been qualified for circling manoeuvres. The operator must be approved to conduct circling manoeuvres by the Authority to participate in that training and checking.*
- (vii) Missed approach from precision approach;
  - (viii) Missed approach from non-precision approach; and
  - (ix) Missed approach with powerplant failure.
- 
- (h) Landings-
    - (i) Abnormal with a pitch mist rim (small aircraft only).
    - (ii) Abnormal from precision instrument approach.

- (iii) Abnormal from precision instrument approach with most critical engine inoperative.
- (iv) Abnormal with 50% loss of power of available powerplants.
- (v) Abnormal with flap/slat malfunction.
- (vi) Rejected landings.
- (vii) Crosswind.
- (viii) Short/soft field (small aircraft only).
- (ix) Glassy/rough water (seaplanes only).
- (ix) Auto-rotation (helicopter only)
  - (i) After landing-
  - (i) Parking;
  - (ii) Emergency evacuation; and
  - (iii) Docking, mooring, and ramping (seaplanes only).
  
- (j) Other flight procedures during any airborne phase-
  - (i) Holding;
  - (ii) Ice accumulation on airframe;
  - (iii) Air hazard avoidance; and
  - (iv) Wind shear/microburst.
  
- (k) Normal, abnormal and alternate systems procedures during any phase-
  - (i) Pneumatic/pressurization;
  - (ii) Air conditioning;
  - (iii) Fuel and oil;
  - (iv) Electrical;
  - (v) Hydraulic;
  - (vi) Flight controls;
  - (vii) Anti-icing and de-icing systems;
  - (viii) Flight management guidance systems and/or automatic or other approach and landing aids;
  - (ix) Stall warning devices, stall avoidance devices, and stability augmentation systems;
  - (x) Airborne weather radar;
  - (xi) Flight instrument system malfunction;
  - (xii) Communications equipment;
  - (xiii) Navigation systems;
  - (xiv) Auto-pilot;
  - (xv) Approach and landing aids; and
  - (xvi) Flight instrument system malfunction.
  
- (l) Emergency systems procedures during any phase-
  - (i) Aircraft fires;
  - (ii) Smoke control;
  - (iii) Powerplant malfunctions;
  - (iv) Fuel jettison;
  - (v) Electrical, hydraulic, pneumatic systems;
  - (vi) Flight control system malfunction; and
  - (vii) Landing gear and flap system malfunction.
  
- (7) Each AOC holder shall ensure that flight engineer recurrent flight training includes at least the flight training specified in IS: 8.10.15(2).



- (8) Each AOC holder shall ensure that flight navigator recurrent training includes enough training and an in-flight check to ensure competency with respect to operating procedures and navigation equipment to be used and familiarity with essential navigation information pertaining to the AOC holder's routes that require a flight navigator.
- (9) The AOC holder may combine recurrent training with the AOC holder's proficiency check.
- (10) Recurrent ground and flight training curricula may be accomplished concurrently or intermixed, but completion of each of these curricula shall be recorded separately.

**IS: 8.10.33 RECURRENT NORMAL AND EMERGENCY TRAINING: CABIN**

**CREW MEMBERS**

- (1) Each AOC holder shall establish and have approved by the Authority a recurrent training program for all cabin crew.
- (2) Each cabin Crewmember shall undergo recurrent training in evacuation and other appropriate normal and emergency procedures and drills relevant to their assigned positions and the type(s) and/or variant(s) of aircraft on which they operate.
- (3) Each AOC holder shall have all recurrent training conducted by suitably qualified personnel.
- (4) Each AOC holder shall ensure that, every 12 months, each cabin crew member receive recurrent training in at least the following:
  - (a) Emergency equipment-
    - (i) Emergency communication and notification systems;
    - (ii) Aircraft exits;
    - (iii) Exits with slides or slide rafts (emergency operation);
    - (iv) Slides and slide rafts in a ditching;
    - (v) Exits without slides (emergency operation);
    - (vi) Window exits (emergency operation);
    - (vii) Exits with tail cones (emergency operation);
    - (viii) Cockpit exits (emergency operation);
    - (ix) Ground evacuation and ditching equipment;
    - (x) First aid equipment;
    - (xi) Portable oxygen systems (oxygen bottles, chemical oxygen generators, protective breathing equipment (PBE));
    - (xii) Firefighting equipment;
    - (xiii) Emergency lighting systems; and
    - (xiv) Additional emergency equipment.
  - (b) Emergency procedures-
    - (i) General types of emergencies specific to aircraft;
    - (ii) Emergency communication signals and procedures;
    - (iii) Rapid decompression;
    - (iv) Insidious decompression and cracked window and pressure seal leaks;
    - (v) Fires;
    - (vi) Ditching;
    - (vii) Ground evacuation;
    - (viii) Unwarranted evacuation (i.e., passenger initiated);
    - (ix) Illness or injury;

- (x) Abnormal situations involving passengers or crew members;
  - (xi) Turbulence; and
  - (xii) Other unusual situations.
- (c) Emergency drills.
- (d) Every 12 months-
- (i) Location and use of all emergency and safety equipment carried on the aeroplane;
  - (ii) The location and use of all types of exits;
  - (iii) Actual donning of a lifejacket where fitted;
  - (iv) Actual donning of protective breathing equipment; and
  - (v) Actual handling of fire extinguishers.
- (e) Every 3 years-
- (i) Operation of all types of exits;
  - (ii) Demonstration of the method used to operate a slide, where fitted;
  - (iii) Fire-fighting using equipment representative of that carried in the aeroplane on an actual or simulated fire;
- Note:** *With Halon extinguishers, an alternative method acceptable to the Authority may be used.*
- (iv) Effects of smoke in an enclosed area and actual use of all relevant equipment in a simulated smoke-filled environment;
  - (v) Actual handling of pyrotechnics, real or simulated, where fitted;
  - (vi) Demonstration in the use of the life-raft(s), where fitted;
  - (vii) An emergency evacuation drill;
  - (viii) A ditching drill if applicable;
  - (ix) A rapid decompression drill, if applicable;
- (f) Crew resource management-
- (i) Decision making skills;
  - (ii) Briefings and developing open communication;
  - (iii) Inquiry, advocacy, and assertion training; and
  - (iv) Workload management.
- (g) Dangerous goods-
- (i) Recognition of and transportation of dangerous goods;
  - (ii) Proper packaging, marking, and documentation; and
  - (iii) Instructions regarding compatibility, loading, storage and handling characteristics.
- (h) Security-
- (i) Hijacking; and
  - (ii) Disruptive passengers.
- (5) Each AOC holder shall verify knowledge of the recurrent training by an oral or written examination.

(6) An AOC holder may administer each of the recurrent training curricula concurrently or intermixed but shall record completion of each of these curricula separately.

**IS: 8.10.34 RECURRENT TRAINING - FLIGHT OPERATIONS OFFICER**

- (1) Each AOC holder shall establish and maintain a recurrent training program, approved by the Authority and established in the AOC holders operations manual, to be completed annually by each flight operations officer.
- (2) Each flight operations officer shall undergo recurrent training relevant to the type(s) and/or variant(s) of aircraft and the operations conducted by the AOC holder, and that training shall consist of at least the following hours of instruction:
  - (1) Piston-engined aircraft – 8 hours.
  - (2) Turbopropeller-powered aircraft – 10 hours.
  - (3) Turbo-jet aircraft – 20 hours.
  - (4) Other aircraft to include rotorcraft– 10 hours.
- (3) Each AOC holder shall have all recurrent training conducted by an appropriately qualified instructor.
- (4) An AOC holder shall ensure that, every 12 months, each flight operations officer receives recurrent training in the subjects required for initial training listed in IS: 8.10.14(D) in sufficient detail to ensure competency in each specified area of training. Operators may choose to provide in-depth coverage of selected subjects on any one cycle of training. In such cases the operator's training programme must cover all the subjects to the detail required for initial qualification within three years.
- (5) Each AOC holder shall verify knowledge of the recurrent training by an oral or written examination.
- (6) An AOC holder shall record completion of the required training.

**IS: 8.10.36 INSTRUCTOR TRAINING**

- (1) Flight crew instructor training.
- (1) No operator may use a person, nor may any person serve as flight instructor in a training programme unless:
  - (i) That person has satisfactorily completed initial or transition flight instructor training; and
  - (ii) Within the preceding 24 calendar months, that person satisfactorily conducts instruction under the observation of an inspector from the Authority or an AOC holder's check personnel.
- (2) An AOC holder may accomplish the observation check for a flight instructor, in part or in full, in an aircraft or a flight simulation training device.
- (3) Each AOC holder shall ensure that initial ground training for flight instructors includes the following—
  - (i) Flight instructor duties, functions, and responsibilities.
  - (ii) Applicable Directives and the AOC holder's policies and procedures.
  - (iii) Appropriate methods, procedures, and techniques for conducting the required checks.
  - (iv) Proper evaluation of student performance including the detection of:

- (v) Improper and insufficient training; and
- (vi) Personal characteristics of an applicant that could adversely affect safety.
- (vii) Appropriate corrective action in the case of unsatisfactory checks.
- (viii) Approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the aircraft.
- (ix) Except for holders of existing flight instructor licences:
  - (A) The fundamental principles of the teaching-learning process;
  - (B) Teaching methods and procedures; and
  - (C) The instructor-student relationship.
- (4) Each AOC holder shall ensure that the transition ground training for flight instructors includes the approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures applicable to the aircraft to which the flight instructor is in transition.
- (5) Each AOC holder shall ensure that the initial and transition flight training for flight instructors includes the following:
  - (i) The safety measures for emergency situations that are likely to develop during instruction.
  - (ii) The potential results of improper, untimely, or non-execution of safety measures during instruction.
  - (iii) For pilot flight instructor (aircraft):
    - (A) Inflight training and practice in conducting flight instruction from the left and right pilot seats in the required normal, abnormal, and emergency procedures to ensure competence as an instructor; and
    - (B) The safety measures to be taken from either pilot seat for emergency situations that are likely to develop during instruction.
  - (iv) For flight engineer instructors and flight navigator instructors, in-flight training to ensure competence to perform assigned duties.
  - (v) An AOC holder may accomplish the flight training requirements for flight instructors in full or in part in flight or in a flight simulation training device, as appropriate.
  - (vi) An AOC holder shall ensure that the initial and transition flight training for flight instructors (flight simulation training device) includes the following:
    - A. Training and practice in the required normal, abnormal, and emergency procedures to ensure competence to conduct the flight instruction required by this part. This training and practice shall be accomplished in full or in part in a flight simulation training device.
    - B. Training in the operation of flight simulation training devices, to ensure competence to conduct the flight instruction required by this Part.
- (2) Cabin crew instructor training.
  - (1) No operator may use a person, nor may any person serve as cabin instructor in a training programme unless:
    - (i) That person has satisfactorily completed initial or transition cabin instructor training; and
    - (ii) Within the preceding 24 calendar months, that person satisfactorily conducts instruction under the observation of an inspector from the Authority or an AOC holder's check personnel.

- (2) An AOC holder may accomplish the observation check for a cabin instructor, in part or in full, in an aircraft or a cabin simulation training device.
- (3) Each AOC holder shall ensure that initial ground training for cabin instructors includes the following—
- (i) Cabin instructor duties, functions, and responsibilities.
  - (ii) Applicable Directives and the AOC holder's policies and procedures.
  - (iii) Appropriate methods, procedures, and techniques for conducting the required checks.
  - (iv) Proper evaluation of student performance including the detection of:
    - (A) Improper and insufficient training; and
    - (B) Personal characteristics of an applicant that could adversely affect safety.
  - (v) Appropriate corrective action in the case of unsatisfactory checks.
  - (vi) Approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the aircraft, as applicable.
  - (vii) Except for existing cabin instructors:
    - (A) The fundamental principles of the teaching-learning process;
    - (B) Teaching methods and procedures; and
    - (C) The instructor-student relationship.
- (4) Each AOC holder shall ensure that the transition ground training for cabin instructors includes the approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures applicable to the aircraft, as appropriate to which the cabin instructor is in transition.
- (5) Each AOC holder shall ensure that the initial and transition flight training for cabin instructors includes the following:
- (i) The safety measures for emergency situations that are likely to develop during instruction.
  - (ii) The potential results of improper, untimely, or non-execution of safety measures during instruction.
- (3) Flight operations officer instructor training.
- (1) No operator may use a person, nor may any person serve as flight operations officer instructor in a training programme unless:
- (i) That person has satisfactorily completed initial or transition flight operations officer instructor training; and
  - (ii) Within the preceding 24 calendar months, that person satisfactorily conducts instruction under the observation of an inspector from the Authority or an AOC holder's check flight operations officer.
- (2) An AOC holder may accomplish the observation check for a flight operations officer instructor, in part or in full, in a flight operations centre.
- (3) Each AOC holder shall ensure that initial ground training for flight operations officer instructors includes the following—
- (i) Flight operations officer instructor duties, functions, and responsibilities.
  - (ii) Applicable Directives and the AOC holder's policies and procedures.
  - (iii) Appropriate methods, procedures, and techniques for conducting the required checks.

- (iv) Proper evaluation of student performance including the detection of:
  - (A) Improper and insufficient training; and
  - (B) Personal characteristics of an applicant that could adversely affect safety.
- (v) Appropriate corrective action in the case of unsatisfactory checks.
- (vi) Approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures for the aircraft or position involved.
- (vii) Except for holders of existing flight operations officer instructor licences:
  - (4) The fundamental principles of the teaching-learning process;
  - (5) Teaching methods and procedures; and
  - (i) The instructor-student relationship.
- (6) Each AOC holder shall ensure that the transition ground training for flight operations officer instructors includes the approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures applicable to the aircraft or position involved to which the flight operations officer instructor is in transition.
- (7) Each AOC holder shall ensure that the initial and transition training for flight operations officer instructors includes the following:
  - (i) The safety measures for emergency situations that are likely to develop during instruction in a flight operations centre.
  - (ii) The potential results of improper, untimely, or non-execution of safety measures during instruction in a flight operations centre.

**IS: 8.10.39 CHECK PERSONNEL TRAINING**

- (a) Training for check personnel - general.
  - (1) No operator may use a person, nor may any person serve as a check person in a training programme unless, with respect to the aircraft type involved, that person has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training and differences training, that are required to serve as PIC, flight engineer, navigator, cabin crewmember, or flight operations officer, as applicable.
  - (2) Each AOC holder shall ensure that initial ground training for check personnel includes:
    - (i) Check personnel duties, functions, and responsibilities.
    - (ii) Applicable Directives and the AOC holder's policies and procedures.
    - (iii) Appropriate methods, procedures, and techniques for conducting the required checks.
    - (iv) Proper evaluation of student performance including the detection of:
    - (v) Improper and insufficient training.
    - (vi) Personal characteristics of an applicant that could adversely affect safety.
  - (A) Appropriate corrective action in the case of unsatisfactory checks.
  - (B) Approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the aircraft.
  - (3) Transition ground training for all check personnel, shall include the approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures applicable to the aircraft to which the check person is in transition.

- (b) Training for check personnel of flight crew.
  - (1) For check pilots, each AOC holder shall ensure that the initial and transition flight training includes:
    - (i) Training and practice in conducting flight evaluations (from the left and right pilot seats for check pilots) in the required normal, abnormal, and emergency procedures to ensure competence to conduct the flight checks.
    - (ii) The potential results of improper, untimely or non-execution of safety measures during an evaluation.
    - (iii) The safety measures (to be taken from either pilot seat for check pilots) for emergency situations that are likely to develop during an evaluation.
  - (2) For check flight engineers and check flight navigators, each AOC holder shall ensure training to ensure competence to perform assigned duties to include:
    - (i) The safety measures for emergency situations that are likely to develop during a check.
    - (ii) The potential results of improper, untimely or non-execution of safety measures during a check.
  - (3) Each AOC holder shall ensure that the initial and transition flight training for check personnel (simulator) includes:
    - (i) Training and practice in conducting flight checks in the required normal, abnormal, and emergency procedures to ensure competence to conduct the checks required by this part (this training and practice shall be accomplished in a flight simulation training device).
    - (ii) Training in the operation of flight simulation training devices, to ensure competence to conduct the checks required by this Part.
  - (4) An AOC holder may accomplish flight training for check personnel, in full or in part in an aircraft or in a flight simulation training device, as appropriate.
  - (5) The AOC holder shall record the training in each individuals training record maintained by the AOC holder.
- (c) Training for check cabin crewmembers.
  - (1) For check cabin crewmembers, each AOC holder shall ensure that the training includes:
    - (i) The safety measures for emergency situations that are likely to develop during a check; and
    - (ii) The potential results of improper, untimely or non-execution of safety measures during a check.
  - (d) Training for check flight operations officers.
    - (1) For check flight operations officers, each AOC holder shall ensure that the training includes:
      - (i) The safety measures for emergency situations that are likely to develop during a check; and
      - (ii) The potential results of improper, untimely or non-execution of safety measures during a check.
    - (e) The AOC holder shall record the training in each individuals training record maintained by the AOC holder.

**IS: 8.11.3 DUTY AND REST PERIODS**

(1) Each AOC holder and each crewmember shall use the following table, as appropriate, to consolidate all scheduling and actual event requirements with respect to crew member duty and rest periods for commercial air transport operations.

| <b>Acceptable Variations to the Basic Duty vs. Rest Requirements</b>                                     |  |                                |  |                           |                                  |
|--|--|--------------------------------|--|---------------------------|----------------------------------|
| This table outlines flight crew maximum duty periods (including duty aloft) and prescribed rest periods. |  |                                |  |                           |                                  |
|  | <b>Consecutive Hours of Flight Deck Duty</b> | <b>Intervening Rest Period</b> | <b>Flight Deck Duty (24 hour period)</b> | <b>Duty Aloft (Hours)</b> | <b>Total Duty Period (Hours)</b> |
| <b>1 Pilot Crew</b>  | 8  | 16                             | 8  | 8                         | 16                               |
| <b>2 Pilot Crew</b>  | 8  | 16                             | 8  | 8                         | 18                               |
| <b>2 Pilot + FE</b>  | 9  | NA                             | 9  | 9                         | 18                               |
| <b>2 Pilots + 1 Relief Pilot</b>   | 8  | 2X Actual Hours Flown          | 12                                       | 12                        | 18                               |
| <b>2 Pilot + 2 Relief Pilots</b>   | 8  | 8                              | 12                                       | 16                        | 20                               |

(2) No certificate holder may schedule a flight crewmember, and no flight crewmember may accept an assignment, for flight time during the 24 consecutive hours preceding the schedule completion of any flight segment without the scheduled rest period during that 24 hours of at least the following:

- (a) 9 consecutive hours of rest for less than 8 hours of scheduled flight time;
- (b) 10 consecutive hours of rest for 8 or more but less than 9 hours of scheduled flight time;
- (c) 11 consecutive hours of rest for 9 or more hours of scheduled flight time.

| <b>Acceptable Scheduled Initial Rest Period Reduction by Lengthening the Subsequent Rest Period</b> |                            |   |  |
|---|----------------------------|---|--|
| <b>Flight Deck Duty Period (Hours)</b>  | <b>Rest Period (Hours)</b> | <b>Authorised Reduced Rest Period (Hours)</b> | <b>Next Rest Period if Reduction Taken</b> |
| <b>Less than 8</b>  | 9                          | 8   | 10   |
| <b>8-9</b>  | 10                         | 8   | 11   |
| <b>9 or more</b>  | 11                         | 9   | 12   |

| <b>Situations Requiring Longer Flight Crew Member Rest Periods</b> |                       |                                  |   |                                       |
|--|-----------------------|----------------------------------|---|---------------------------------------|
|  | <b>Period of Time</b> | <b>Total Flight Time (Hours)</b> | <b>Intervening Rest Period (Hours)</b>            | <b>Subsequent Rest Period (Hours)</b> |
| 1 or 2 Pilot Crew  | 24                    | 8+                               | 2X Actual Hours Flown (but not less than 8 hours) | 18                                    |
| 2 Pilots + FE  | 48                    | 20+                              | NA  | 18                                    |
| 2 Pilots + FE  | 72                    | 24+                              | NA  | 18                                    |



|   |  |                                |   |  |
|---|--|--------------------------------|---|--|
| 2 Pilots + FE<br>+ Relief Crew  | Return to<br>Base                        | NA                             | NA  | 2X<br>Total flight hours aloft                 |
| <b>Acceptable Situations for Reducing Initial Cabin Attendant Rest Period<br/>Through the Addition of Extra Attendants on the Flights</b> |  |                                |   |  |
| <b>Scheduled Duty<br/>Period (Hours)</b>  | <b>Extra<br/>Attendants<br/>Required</b> | <b>Rest Period<br/>(Hours)</b> | <b>Authorised<br/>Reduced Rest<br/>Period (Hours)</b> | <b>Next Rest Period if<br/>Reduction Taken</b> |
| <b>14 or less</b>   | 0  | 9                              | 8   | 10   |
| <b>14-16</b>  | 1  | 12                             | 10  | 14   |
| <b>16-18</b>  | 2  | 12                             | 10  | 14   |
| <b>18-20</b>  | 3  | 12                             | 10  | 14   |