

# SWAZILAND GOVERNMENT GAZETTE EXTRAORDINARY

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# PART C

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LEGAL NOTICE NO. 124 OF 2011

CIVIL AVIATION AUTHORITY ACT, 2009  
(Act No. 10 of 2009)

CIVIL AVIATION AUTHORITY (RULES OF THE AIR AND AIR  
TRAFFIC CONTROL) REGULATIONS, 2011  
(Under Section 104)

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**PART I**  
**PRELIMINARY**

In exercise of the powers conferred by section 104 of the Civil Aviation Authority Act, 2009, the Minister of Public Works and Transport makes the following regulations-

***Citation and commencement***

1. These regulations may be cited as the Civil Aviation Authority (Rules of the Air and Air Traffic Control) Regulations, 2011, and shall come into force on the date of publication in the Gazette.

***Interpretation***

2. In these regulations, unless the context otherwise requires, words or expressions used in the Act have the same meaning as in these Regulations, and-

"acrobatic flight" means manoeuvres intentionally performed by an aircraft involving an abrupt change in its attitude, an abnormal attitude or an abnormal variation in speed;

"advisory airspace" means airspace of defined dimensions or designated route, within which air traffic advisory service is available;

"aerodrome" means a defined area on land or water (including any buildings, installations and equipment) used or intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft;

"aerodrome control tower" means a unit established to provide air traffic control service to aerodrome traffic;

"aerodrome traffic" means all traffic on the manoeuvring area of an aerodrome and all aircraft flying in the vicinity of an aerodrome;

"aerodrome traffic zone" means an airspace of defined dimensions established around an aerodrome for the protection of aerodrome traffic;

"Aeronautical Information Publication (AIP)" means a publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation;

"aeronautical mobile service" means a mobile service between aeronautical stations and aircraft stations or between aircraft stations, in which survival craft stations may participate;

"aeronautical station" means a land station in the aeronautical mobile service which in certain instances, may be located, for example, on board a ship or on a platform at sea;

"aeroplane" means 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;

"airborne collision avoidance system (ACAS)" means an aircraft system based on SSR transponder signals which operates independently of ground based equipment to provide advice to the pilot on potential conflicting aircraft that are equipped with SSR transponders;

"aircraft" means a machine that derives support in the atmosphere from the reactions of the air, other than the reactions of the air against the surface of the earth;

"air traffic" means all aircraft in flight or operating on the manoeuvring area of an aerodrome;

"air traffic advisory service" means a service provided within advisory airspace to ensure separation, in so far as practical, between aircraft which are operating on IFR flight plans;

"air traffic control clearance" means authorization for an aircraft to proceed under conditions specified by an air traffic control unit;

"air traffic control service" means a service provided for the purpose of preventing collisions between aircraft; and on manoeuvring area between aircraft and obstructions; and expediting and maintaining an orderly flow of air traffic;

"air traffic control unit" means an area control centre, approach control unit or aerodrome control tower;

"air traffic service" means a flight information service, alerting service, air traffic advisory service, or air traffic control service;

"air traffic services airspaces" means airspaces of defined dimensions, alphabetically designated, within which specific types of flights may operate and for which air traffic services and rules of operation are specified;

"air traffic services reporting office" means a unit established for the purpose of receiving reports concerning air traffic services and flight plans submitted before departure;

"air traffic services unit (ATSU)" means a generic term meaning variously, air traffic control unit, flight information centre or air traffic services reporting office;

"airway" means a control area or portion of a control area established in the form of a corridor;  
 "alerting service" means a service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist the organizations as required;

"alternate aerodrome" means 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 and alternate aerodrome includes the following-

- (a) 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;
- (b) en-route alternate- an aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while en route;
- (c) ETOPS 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 ETOPS operation;
- (d) 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;

"altitude" means the vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL);

"anti-collision light" means a flashing red or flashing white light showing in all directions for the purpose of enabling the aircraft to be more readily detected by a pilot of distant aircraft;  
 "approach control service" means an air traffic control service for arriving or departing controlled flights;

"approach control unit" means a unit established to provide air traffic control service to controlled flights arriving at or departing from, one or more aerodromes;

"appropriate ATS authority" means the relevant authority designated by the State responsible for providing air traffic services in the airspace concerned;

"appropriate authority" means-

- (a) regarding flight over the high seas, the relevant authority of the State of Registry;
- (b) regarding flight other than over the high seas, the relevant authority of the State having sovereignty over the territory being over flown;

"apron" means a defined area on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance;

"area control centre" means a unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction;

"area control service" means air traffic control service for controlled flights in control areas;

"ATS route" means a specified route designed for channeling the flow of traffic as necessary for the provision of air traffic services;

"Authority" means the Civil Aviation Authority established under the Civil Aviation Authority Act;

"automatic dependent surveillance (ADS)" means a surveillance technique in which aircraft automatically provide, via a data link, data derived from on-board navigation and position-fixing systems, including aircraft identification, four dimensional position and additional data as appropriate;

"ceiling" means the height above the ground or water of the base of the lowest layer of cloud below 6,000 metres (20 000 feet) covering more than half the sky;

"changeover point" means the point at which an aircraft navigating on an ATS route segment defined by reference to very high frequency omnidirectional radio ranges is expected to transfer its primary navigational reference from the facility behind the aircraft to the next facility ahead of the aircraft;

"clearance limit" means the point to which an aircraft is granted an air traffic control clearance;

"competent authority" means in relation to Swaziland, the Authority and in relation to any other state, the authority responsible under the law of that state for promoting the safety of civil aviation;

"control area" means a controlled airspace extending upwards from a specified limit above the earth;

"controlled aerodrome" means an aerodrome at which air traffic control service is provided to aerodrome traffic;



"controlled airspace" means an airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification; controlled airspace is a generic term which covers ATS airspace classes A, B, C, D and E as described in these Regulations; "controlled flight" means a flight which is subject to an air traffic control clearance;

"control zone" means a controlled airspace extending upwards from the surface of the earth to a specified upper limit;

"cruising level" means a level maintained during a significant portion of a flight;

"current flight plan" means a flight plan, including changes, if any, brought about by subsequent clearances;

"danger area" means an airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times;

"data link communications" means a form of communication intended for the exchange of messages via a data link;

"estimated off-block time" means the estimated time at which an aircraft will commence movement associated with departure;

"estimated time of arrival" means, for instrument flight rules (IFR) flights, the time at which it is estimated that the aircraft will arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the aerodrome, the time at which the aircraft will arrive over the aerodrome; for visual flight rules (VFR) flights, the time at which it is estimated that the aircraft will arrive over the aerodrome;

"expected approach time" means the time at which ATC expects that an arriving aircraft, following a delay, will leave the holding fix to complete its approach for a landing;

"filed flight plan" means the flight plan as filed with an ATS unit by the pilot or a designated representative, without any subsequent changes;

"flight" means in the case of-

- (a) an aeroplane or glider, from the moment it first moves for the purpose of taking off until the moment when it next comes to rest after landing;
- (b) an airship or free balloon, from the moment when it first becomes detached from the surface until the moment when it next becomes attached to or comes to rest on the surface;

"flight information centre" means a unit established to provide flight information service and alerting service;

"flight information region" means an airspace of defined dimensions within which flight information service and alerting service are provided;

"flight information service" means a service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights;

"flight level" means a surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2 hectopascals (hPa), and is separated from other surfaces by specific pressure intervals;

"flight plan" means specified information provided to air traffic service units, relative to an intended flight or portion of a flight of an aircraft;

"flight visibility" means the visibility forward from the cockpit of an aircraft in flight;

"glider" means a non-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;

"ground visibility" means the visibility at an aerodrome, as reported by an accredited observer;

"heading" means the direction in which the longitudinal axis of an aircraft is pointed, usually expressed in degrees from north (true, magnetic, compass or grid);

"heavier-than-air aircraft" means an aircraft deriving its lift in flight chiefly from aerodynamic forces;

"height" means the vertical distance of a level, a point or an object considered as a point, measured from a specified datum;

"helicopter" means 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 axis;

"IFR" means the symbol used to designate the instrument flight rules;

"IFR flight" means a flight conducted in accordance with the instrument flight rules;

"instrument approach procedure" means a series of pre-determined manoeuvres by reference to flight instruments, with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and after that, if a landing is not completed, to a position at which holding or enroute obstacle clearance criteria apply; instrument approach procedures are classified as follows-

- (a) non-precision approach (NPA) procedure - an instrument approach procedure which utilizes lateral guidance but does not utilize vertical guidance;
- (b) approach procedure with vertical guidance (APV) - an instrument approach procedure which utilizes lateral and vertical guidance but does not meet the requirements established for precision approach and landing operations;
- (c) precision approach (PA) procedure - an instrument approach procedure using precision lateral and vertical guidance with minima as determined by the category of operation;
- (d) "instrument meteorological conditions (IMC)" means meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less than the minima specified for visual meteorological conditions;

"landing area" means that part of a movement area intended for the landing or take-off of aircraft; "level" means a generic term relating to the vertical position of an aircraft in flight and meaning variously, height, altitude or flight level;

"manoeuvring area" means that part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons;

"movement area" means that part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron(s);

"night" means the time between 5 minutes after sunset and 15 minutes before sunrise, sunrise and sunset being determined at surface level, and includes any time between sunset and sunrise when an unlighted aircraft or other unlighted prominent object cannot clearly be seen at a distance of 4,572 metres;

"overtaking aircraft" means an aircraft that approaches another from the rear on a line forming an angle of less than 70 degrees with the plane of symmetry of the latter, so that it is in such a position with reference to the other aircraft that at night it should be unable to see either of the left (port) or right (starboard) navigation lights of the aircraft;

"parascending parachute" means a parachute which is towed by cable in such a manner as to cause it to ascend;

"pilot-in-command (PIC)" means 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" means an atmospheric pressure expressed in terms of altitude which corresponds to that pressure in the standard atmosphere;

"prohibited area" means an airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited;

"radiotelephony" means a form of radio communication primarily intended for the exchange of information in the form of speech;

"repetitive flight plan (RPL)" means 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 ATS units;

"reporting point" means a specified geographical location in relation to which the position of an aircraft can be reported;

"restricted area" means an airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of an aircraft is restricted in accordance with certain specified conditions;

"runway" means a defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft;

"runway-holding position" means a designated position intended to protect-

- (a) a runway;
- (b) an obstacle limitation surface; or
- (c) an instrument landing system or microwave landing system critical area or sensitive area at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorized by the aerodrome control tower;

"safety-sensitive personnel" means persons who might endanger aviation safety if they perform their duties and functions improperly including, but not limited to, crew members, aircraft maintenance personnel and air traffic controllers;

"simulated instrument flight" means a flight during which mechanical or optical devices are used in order to reduce the field of vision or the range of visibility from the cockpit of the aircraft;

"signal area" means an area on an aerodrome used for the display of ground signals;

"special VFR" means a controlled VFR traffic authorized by air traffic control to operate within the control zone under meteorological conditions below the VMC or at night;

"secondary surveillance radar (SSR)" means a surveillance radar system which uses interrogators and transponders;

"taxiing" means movement of an aircraft on the surface of an aerodrome under its own power, excluding take-off and landing;

"taxiway" means a defined path on a land aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another, including-

- (a) aircraft stand taxi lane - a portion of an apron designated as a taxiway and intended to provide access to aircraft stands only;
- (b) apron taxiway - a portion of a taxiway system located on an apron and intended to provide a through taxi route across the apron;
- (c) rapid exit taxiway - a taxiway connected to a runway at an acute angle and designed to allow landing aeroplanes to turn off at higher speeds than are achieved on other exit taxiways thereby minimizing runway occupancy times;

"total estimated elapsed time" means, for IFR flights, the estimated time required from take-off to arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced or, if no navigation aid is associated with the destination aerodrome, to arrive over the destination aerodrome; for VFR flights, the estimated time required from take-off to arrive over the destination aerodrome;

"track" means the projection on the surface of the earth the path of an aircraft, the direction of which path at any point is usually expressed in degrees from north (true, magnetic or grid);

"transition altitude" means the altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes;

"unmanned free balloon" means a non-power-driven, unmanned, lighter-than-air aircraft in free flight;

"VFR" means the symbol used to designate the visual flight rules;

"VFR flight" means a flight conducted in accordance with the visual flight rules;

"visibility" for aeronautical purposes means the greater of-

- (a) the greatest distance at which a black object of suitable dimensions, situated near the ground, can be seen and recognized when observed against a bright background;

- (b) the greatest distance at which lights in the vicinity of 1 000 candelas can be seen and identified against an unlit background;

"visual meteorological conditions (VMC)" means meteorological conditions expressed in terms of visibility distance from cloud, and ceiling, equal to or better than specified minima.

## PART II GENERAL RULES

### *Compliance with the rules of the air and air traffic control*

3. (1) Every person and every aircraft including State aircraft shall comply with these Regulations.

(2) Subject to sub-regulation (3), it shall be an offence to contravene, to permit the contravention of or to fail to comply with these Regulations.

(3) A pilot in command (PIC) shall be responsible for the operation of the aircraft in accordance with these Regulations, except that the PIC may depart from them in the interest of safety to the extent necessary-

(a) to avoid immediate danger or in an emergency situation;

(b) to comply with the law of any State other than Swaziland within which the aircraft then is.

(4) If any departure from these Regulations is made for the purpose of avoiding immediate danger or in an emergency situation, the PIC shall cause written particulars of the departure and of the circumstances giving rise to the departure, to be given without delay, and in any case within 10 days after that, to the competent authority of the State in whose territory the departure was made with a copy of it to the Authority and the State of the operator, and in the case of Swaziland aircraft the departure was made over the high seas, to the Authority.

(5) Nothing in these Regulations shall exonerate any person from the consequences of any neglect in the use of lights or signals or of the neglect of any precautions required by ordinary aviation practice or by the special circumstances of the case.

(6) The Authority may, for the purpose of promoting the safety of aircraft make rules as to special signals and other communications to be made by or on an aircraft, the course on which and the height at which an aircraft shall fly and any other precautions to be observed in relation to the navigation and control of aircraft which the Authority may consider expedient and no aircraft shall fly in contravention of any such rules.

## PROTECTION OF PERSONS AND PROPERTY

### *Negligent or reckless operation of aircraft*

4. No person shall operate an aircraft willfully, negligently or recklessly in a manner that endangers life or property.

### *Low flying.*

5. (1) Subject to sub-regulations (2) and (3)-

- (a) an aircraft, other than a helicopter, shall not fly over any congested area of a city, town or settlement below-
  - (i) a height that would enable the aircraft to alight clear of the area and without danger to persons or property on the surface, in the event of failure of a power unit; or
  - (ii) a height of 1,000 feet above the highest fixed object within 600 metres of the aircraft whichever is the higher;
- (b) a helicopter shall not fly below a height that would enable it to alight without danger to persons or property on the surface, in the event of failure of a power unit;
- (c) except with the permission in writing of the Authority and in accordance with any condition specified, a helicopter shall not fly over a congested area of a city, town or settlement below a height of 1,000 feet above the highest fixed object within 600 metres of the helicopter;
- (d) an aircraft shall not fly-
  - (i) over, or within 1,000 metres of any assembly in the open air of more than 1,000 persons assembled for the purpose of witnessing or participating in any organised event, except with the permission in writing of the Authority and in accordance with any conditions specified and with the consent in writing of the organizers of the event; or
  - (ii) below a height that would enable the aircraft to land clear of the assembly in the event of the failure of a power unit or, if that aircraft is towing a banner the height shall be calculated on the basis that the banner shall not be dropped within 1000 metres of the assembly.
- (e) an aircraft shall not fly less than 500 feet above ground or water.

(2) Where a person is charged with an offence under these Regulations by reason of a contravention of sub regulation(1), it shall be a good defence to prove that the flight of the aircraft over, or within 1,000 metres of the assembly was made at a reasonable height and for a reason not connected with the assembly or with the event which was the occasion for the assembly;

(3) Sub-regulation 1(d) and (e) shall not apply to an aircraft which is being used for police purposes.

(4) The provisions of sub-regulation 1(e) shall not apply to an aircraft which is being used for aerial work operations related to agriculture, horticulture, or forest preservation in accordance with the operating provisions of the Civil Aviation Authority (Aerial Work) Regulations.

(5) Sub-regulations 1(d) and (e) shall not apply to the flight of an aircraft over or within 1,000 metres of an assembly of persons gathered for the purpose of witnessing an event which consists wholly or principally of an aircraft race contest or an exhibition of flying, if the aircraft is taking part in that race, contest or exhibition or is engaged in a flight arranged by, or made with the consent in writing of, the organizers of the event, and the races, contest, exhibition or flight is approved by the Authority.

(6) Sub-regulation 1(a) shall not apply to-

- (a) aircraft while it is landing or taking-off in accordance with normal aviation practice;
  - (b) glider while it is hill-soaring.
- (7) Nothing in this regulation shall prohibit any aircraft from-
- (a) taking off, landing or practising approaches to landing; or
  - (b) flying for the purpose of checking navigational aids or procedures in accordance with normal aviation practice at a licensed or certificated aerodrome in Swaziland or at any aerodrome in any other state; or
  - (c) flying in a manner that may be necessary for the purpose of saving life.
- (8) In the case of practicing approaches to landing, that practicing shall be confined to the airspace customarily used by aircraft when landing or taking off in accordance with normal aviation practice at the aerodrome concerned.
- (9) This regulation shall not apply to any captive balloon or kite.

***Formation flights.***

6. No person shall fly an aircraft in a formation flight except by pre-arrangement among the pilots in command (PICs) of the aircraft taking part in the flight and, for formation flight in controlled airspace, in accordance with the conditions prescribed by the appropriate air traffic services authority, which conditions shall include-

- (a) the formation operates as a single aircraft with regard to navigation and position reporting;
- (b) separation between aircraft in the flight shall be the responsibility of the flight leader and the PICs of the other aircraft in the flight and shall include periods of transition when aircraft are manoeuvring to attain their own separation within the formation flight and during join-up and break-away; and
- (c) a distance not exceeding 1 km (0.5 nm) laterally and longitudinally and 30 m (100 feet) vertically from the flight leader shall be maintained by each aircraft.

***Unmanned free balloons.***

7. (1) An unmanned free balloon shall be operated in a manner that minimizes hazards to persons, property or other aircraft and in accordance with the conditions specified in this regulation.

(2) Unmanned free balloons shall be classified as-

- (a) light- an unmanned free balloon which carries a pay load of one or more packages with a combined mass of less than 4 kg, unless qualifying as a heavy balloon under this paragraph;
- (b) medium- an unmanned free balloon which carries a pay load of 2 or more packages with a combined mass of 4 kg or more but less than 6 kg unless qualifying as a heavy balloon under this paragraph;
- (c) heavy- an unmanned free balloon which carries a pay load which-

- (i) has a combined mass of 6 kg or more; or
- (ii) includes a package of 3 kg or more; or
- (iii) includes a package of 2 kg or more with an area density of more than 13 grams per square centimetre; or
- (iv) uses a rope or other device for suspension of the pay load that requires an impact force of 230 newtons or more to separate the suspended pay load from the balloon and the area density" referred to in paragraph (c) shall be determined by dividing the total mass in grams of the pay load package by area, in square centimetres, of its smallest surface.

(3) An unmanned free balloon-

- (a) shall not be operated without the permission of the Authority;
- (b) shall not be operated across the territory of another State without the appropriate authorisation from that other state unless it is a *Light* balloon used exclusively for meteorological purposes which is operated in a manner prescribed by the Authority;
- (c) shall be operated in accordance with conditions specified by the Authority while being flown over Swaziland territory;
- (d) shall be operated in a manner that to minimizes hazards to persons, property or other aircraft;
- (e) shall not be operated in a manner that the impact of the balloon or any part of the balloon, including its pay load, with the surface of the earth would create a hazard to persons or property not connected with the operation;
- (f) where equipped with a trailing antenna that requires a force of more than 230 newtons to break it at any point, not to be operated unless the antenna has coloured pennants or streamers that are attached at not more than 15 metre intervals, and the authorization referred to in paragraph (b) shall be obtained prior to the launching of the balloon if there is a reasonable expectation when planning the operation that the balloon may drift into airspace over the territory of another state, and the authorization may be obtained for a series of balloon flights or for a particular type of recurring flight such as atmospheric research balloon flights.

(4) A medium or heavy unmanned free balloon shall not be released in a manner that may cause it to fly lower than 300 m (1,000 feet) over the congested area of cities, towns, or settlements or an open air assembly of persons not associated with the operation.

(5) A heavy unmanned free balloon shall not be operated-

- (a) over the high seas without prior co-ordination with the appropriate air traffic services (ATS) authority;
- (b) without authorization from the appropriate ATS authority at or through any level below 18,000 m (60,000 feet) pressure altitude at which-
  - (i) there are clouds or other obscuring phenomena of more than 4 oktas coverage; or
  - (ii) the horizontal visibility is less than 8 km (5 miles);



## (c) unless-

- (i) it is equipped with at least 2 pay load flight termination devices or systems, whether automatic or operating independently or each other;
- (ii) in the case of polyethylene zero-pressure balloons at least 2 method systems, devices or combination thereof that functions independently of each other are employed for terminating the flight of the balloon services;
- (iii) the balloon envelope is equipped with either a radar reflective device or radar reflective material that will present an echo to surface radar operating in the 200MHz to 2700MHz frequency range or the balloon is equipped with such other devices as shall permit continuous tracking by the operator beyond the range of ground-based radar;
- (d) in an area where ground-based secondary surveillance radar (SSR) equipment is in use, unless it is equipped with an transponder, with altitude reporting capability, which is continuously operating on an assigned code or which can be turned on when necessary by the tracking station;
- (e) below 18,000 m (60,000 feet) pressure-altitude between sunset and sunrise or such other period between sunset and sunrise, corrected to the altitude of operation, as may be prescribed by the appropriate ATS authority unless the balloon and its attachments and pay load, whether or not they become separated during the operation, are lighted;
- (f) below 18,000 m (60,000 feet) pressure-altitude between sunset and sunrise where it is equipped with a suspension device, other than a highly conspicuous coloured open parachute, more than 15 metres long, unless the suspension device is coloured in alternate bands of highly conspicuous colours or has coloured pennants attached.

(6) The operator of a heavy unmanned free balloon shall activate the appropriate termination devices required under sub-regulation (4) (c)-

- (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 the territory of another state.

(7) Early notification of the intended flight of a medium or heavy unmanned free balloon shall be made to the appropriate ATS unit not less than seven days before the date of the intended flight and shall include any of the following information as may be required by the appropriate air traffic services unit-

- (a) balloon classification and identification;
- (b) balloon flight identification or project code name;
- (c) SSR services code or non-directional radio beacon (NDB) frequency as applicable;
- (d) the name and telephone number of the operator;
- (e) launch site;

- (f) estimated time of launch or time of commencement and completion of multiple launches, if multiple launches;
- (g) expected direction of ascent;
- (h) cruising level (pressure altitude);
- (i) the estimated elapsed time to pass 18,000 m (60,000 feet) together with the estimated location;
- (j) the estimated date and time of termination of the flight and the planned location of the impact or recovery area;

(8) In the case of balloons carrying out flights of long duration, as a result of which the date and time of termination of the flight and the location of the impact cannot be forecast with accuracy, the term "long duration" shall be used.

(9) Where the operation consists of continuous launchings, the time to be included is the estimated time at which the first and last launchings in the series will reach the appropriate level (e.g. 122136Z-130330Z).

(10) 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, and, where there is to be a series of continuous impacts, the time to be included is the estimated time of the first and last series (e.g. 070330Z-072300Z);

(11) Any changes in the pre-launch information notified in accordance with sub-regulation (7) shall be forwarded to the air traffic services unit (ATSU) concerned not less than 6 hours before the estimated time of launch or in the case of solar or cosmic disturbances investigations involving a critical time element, not less than 30 minutes before the estimated time of the commencement of the operation.

(12) Immediately after a medium or heavy unmanned free balloon is launched, the operator shall give the appropriate ATSU the following information-

- (a) balloon flight identification;
- (b) launch site;
- (c) actual time of launch;
- (d) estimated time at which 18,000 m (60,000 feet) pressure-altitude shall be passed, or the estimated time at which the cruising level shall be reached if at or below 18,000 m (60,000 feet) and the estimated location; or
- (e) any changes to the information previously given under sub-regulation (6) (a).

(13) The operator shall notify the appropriate ATSU immediately it is known that the intended flight of a medium or heavy unmanned free balloon previously notified in accordance with paragraph (6)(a) has been cancelled.

(14) The operator of a heavy unmanned free balloon-

- (a) operating at or below 8,000 m (60,000 feet) pressure-altitude shall monitor the flight path of the balloon and forward reports of the position of the balloon as requested by the ATSU and unless the ATSU require reports of the position of the balloon at more frequent intervals the operator shall record the position every 2 hours;
- (b) operating above 18,000 m (60,000 feet) pressure-altitude shall monitor the flight progress of the balloon and forward a report of the position of the balloon as requested by the ATSU and unless the ATSU require reports of the position of the balloon at more frequent intervals the operator shall record the position every 24 hours and if the position cannot be recorded in accordance with paragraph (a) or (b) the operator shall immediately notify the appropriate ATSU, which notification shall include the last recorded position and shall after that notify the appropriate ATSU when the tracking of the balloon is re-established.

(15) One hour before the beginning of the planned descent of a heavy unmanned free balloon, the operator shall forward to the appropriate ATSU the following information regarding the balloon-

- (a) its current geographical position;
- (b) the current level (pressure-altitude);
- (c) the forecast time of penetrating of 18,000 m (60,000 feet) pressure-altitude, if applicable; and
- (d) the forecast time and location of ground impact.

(16) The operator of a heavy or medium unmanned free balloon shall notify the appropriate ATSU when the operation is ended.

### ***Acrobatic flight***

8. (1) No person shall operate an aircraft in acrobatic flight except under conditions prescribed by the Authority and as indicated by relevant information, advice or clearance from the appropriate air traffic services unit (ATSU).

(2) No person shall operate an aircraft-

- (a) in acrobatic flight
  - (i) over any city, town or settlement;
  - (ii) over an open air assembly of persons;
  - (iii) below an altitude of 1,500 feet above the surface; or
  - (iv) when the flight visibility is less than 5 kilometres;
- (b) in manoeuvres exceeding a bank of 60 degrees or pitch of 30 degrees from level flight attitude unless all occupants of the aircraft are wearing parachutes packed by a qualified parachute rigger in the past 12 months.

(3) A person flying an aircraft within Swaziland in sight of the ground and following a road, railway, canal or coastline or any other line of landmarks, shall keep that line of landmarks on their left.

***Prohibited areas and restricted areas***

10. No person shall operate an aircraft in a prohibited area or 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 Government of Swaziland.

***Flights over game parks, game reserves and national parks***

11. No person shall operate an aircraft except for the purpose of take-off or landing below 1500 feet, above ground level when operating the aircraft over game parks, game reserves or national parks.

***Cruising levels***

12. (1) 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) Subject to sub-regulation (5), in order to comply with instrument flight rules (IFR), an aircraft when in level flight at or above 1,000 feet over land or water within controlled airspace shall be flown at a level appropriate to its magnetic track as specified in Regulation 78.

(3) Subject to sub-regulation (5), in order to comply with IFR, an aircraft when in level flight at or above 1,000 feet over land or water outside controlled airspace shall be flown at a level appropriate to its magnetic track, in accordance with Table 1.

(4) Except where otherwise indicated in air traffic control clearances or specified by the Authority, visual flight rules (VFR) flights in level cruising flight when operated at or above 1000 ft from the ground or water shall be conducted at a flight level appropriate to its magnetic track in accordance with Table 1.

(5) The level of flight shall be measured by an altimeter set according to the system notified, or in the case of flight over a state other than Swaziland, otherwise published by the competent authority, in relation to the area over which the aircraft is flying.

(6) An aircraft may be flown in conformity with instructions given by an air traffic control unit or in accordance with notified en-route holding patterns or in accordance with holding procedures notified in relation to an aerodrome.

TABLE 1  
TABLE OF CRUISING LEVELS - NON RVSM AIRSPACE

						TRACK							
From 000 Degrees to 179 Degrees***						From 180 Degrees to 359 Degrees							
IFR Flights			VFR Flights			IFR Flights			VFR Flights				
Altitude			Altitude			Altitude			Altitude				
FL		Meters	Feet	FL	rs	Feet	FL	Meters	Feet	FL	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	50	2450	8000	8	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	5300	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	26500	265	8100	26500		
270	8250	27000	275	8400	27500	280	8550	28500	285	8700	28500		
290	8850	29000	300	9150	30000	310	9450	32000	320	9750	32000		
330	10050	33000	340	10350	34000	250	10650	36000	360	10950	36000		
370	11300	37000	380	1160	38000	390	11900	40000	400	12200	40000		
410	12500	41000	420	12500	42000	430	13100	44000	440	13400	44000		
450	13700	45000	460	14000	46000	470	14350	48000	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	etc	

\*\*\*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.

*Dropping, spraying, towing and parachute descents*

13. No person shall-

- (a) drop any article, substance or spray any substance from an aircraft in flight;
- (b) tow an aircraft or other object; or

- (c) make a parachute descent other than an emergency descent,

except in accordance with conditions prescribed by the Authority and as indicated by relevant information, advice and clearance from the appropriate air traffic services unit.

***Proximity to other aircraft.***

14. No person shall operate an aircraft in such proximity to other aircraft as to create a collision hazard.

***Right-of-way rules: air operations***

15. (1) A pilot in command of an aircraft that has the right-of-way shall maintain the heading and speed of the aircraft, but nothing in this regulation shall relieve the PIC from the responsibility of taking such action, including collision avoidance manoeuvres based on resolution advisories provided by airborne collision avoidance system (ACAS) equipment, as will best avert collision.

(2) A pilot operating an aircraft shall maintain vigilance so as to see and avoid other aircraft, and where this regulation gives another aircraft the right-of-way, the pilot shall give way to that aircraft and shall not pass over, under or ahead of it unless well clear and taking into account the effect of aircraft wake turbulence.

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

(4) When two aircraft are converging at approximately the same level, the aircraft that has the other on its right shall give way, except as follows-

- (a) power-driven heavier-than-air aircraft shall give way to airships, gliders and balloons;
- (b) airships shall give way to gliders and balloons;
- (c) gliders shall give way to balloons;
- (d) power-driven aircraft shall give way to aircraft which are seen to be towing other aircraft or objects.

(5) An aircraft towing or refueling other aircraft has the right-of-way over all other engine-driven aircraft, except aircraft in distress.

(6) Where two aircraft are approaching head-on or nearly so, and there is danger of collision, each pilot shall alter course to the right.

(7) An aircraft that is being overtaken has the right of-way and the overtaking aircraft, whether climbing, descending or in horizontal flight, shall keep out of the way of the other aircraft by altering its heading to the right, and no subsequent change in the relative positions of the two aircraft shall absolve the overtaking aircraft from this obligation until it is entirely past and clear.

(8) When two or more heavier-than-air aircraft are approaching an aerodrome for the purpose of landing, aircraft at the higher level shall give way to aircraft at the lower level, but the latter shall not take advantage of this rule to cut in front of another which is in the final stages of an approach to land, or to overtake that aircraft if-

- (a) when an air traffic control unit has communicated to any aircraft an order of priority for landing, the aircraft shall approach to land in that order; and
  - (b) when the pilot in command (PIC) of an aircraft is aware that another aircraft is making an emergency landing, the PIC shall give way to that aircraft, and notwithstanding that the PIC may have received permission to land, shall not attempt to land until the PIC receives further permission to do so.
- (9) A power-driven heavier-than-air aircraft shall give way to a glider.

***Right of way rules- ground operations***

16. (1) This regulation shall apply to aeroplanes and vehicles on the movement area of a land aerodrome.

(2) Notwithstanding any air traffic control clearances, it shall remain the duty of the pilot in command to take all possible measures to ensure that the aircraft does not collide with any other aircraft or with any vehicle.

(3) Emergency vehicles proceeding to the assistance of aircraft in distress shall be afforded priority over all other surface movement traffic.

(4) Aircraft and vehicles shall give way to aircraft which are taking off or landing.

(5) Vehicles towing aircraft shall give way to aircraft which are landing, taking off or taxing.

(6) Vehicles which are not towing aircraft shall give way to aircraft.

(7) Vehicles shall give way to other vehicles towing aircraft.

(8) Subject to sub-regulation (4) and regulation 21(4), in case of danger of collision between two aircrafts-

- (a) when two aircraft are approaching head-on or approximately so, each aircraft shall stop or where practicable alter its course to the right so as to keep well clear;
- (b) when two aircraft are on converging course, the one which has the other on its right shall give way to the other and shall avoid crossing ahead of the other unless passing well clear of it;
- (c) an aircraft which is being overtaken shall have the right-of-way, and the overtaking aircraft shall keep out of the way of the other aircraft by altering its course to the left until that other aircraft has been passed and is clear, notwithstanding any change in the relative position of the two aircraft;
- (d) an aircraft taxiing on the manoeuvring area of an aerodrome shall give way to aeroplanes taking off or about to take off.

(9) Subject to sub-regulation (4) (b), a vehicle shall-

- (a) overtake another vehicle so that the other vehicle is on the left of the overtaking vehicle;
- (b) keep to the left when passing another vehicle which is approaching head-on or approximately so.

***Right-of-way rules- water operations***

17. (1) A person operating an aircraft on the water shall, in so far 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 this regulation.

(2) Where aircraft or an aircraft and a vessel are on crossing courses, the aircraft or vessel to the right of the other has the right-of-way.

(3) Where 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) An aircraft or vessel that is being overtaken has the right-of-way and the one overtaking shall alter course to keep well clear.

(5) 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 aircraft.

18. (1) For the purposes of this regulation, the following terms shall have the following meanings-

(a) angles of coverage-

(i) angle of coverage A is formed by two intersecting vertical planes making angles of 70 degrees to the right and 70 degrees to the left respectively, looking aft along the longitudinal axis to a vertical plane passing through the longitudinal axis;

(ii) angle of coverage F is formed by two intersecting vertical planes making angles of 110 degrees to the right and 110 degrees to the left respectively, looking forward along the longitudinal axis to a vertical plane passing through the longitudinal axis;

(iii) angle of coverage L is formed by two intersecting vertical planes, one parallel to the longitudinal axis of the aeroplane, and the other 110 degrees to the left of the first, when looking forward along the longitudinal axis;

(iv) angle of coverage R is formed by two intersecting vertical planes, one parallel to the longitudinal axis of the aeroplane, and the other 110 degrees to the right of the first, when looking forward along the longitudinal axis;

(b) horizontal plane-the plane containing the longitudinal axis and perpendicular to the plane of symmetry of the aeroplane;

(c) longitudinal axis of the aeroplane- a selected axis parallel to the direction of the flight at a normal cruising speed and passing through the centre of gravity of the aeroplane;

(d) making way: an aeroplane on the surface of the water is "making way" when it is under way and has a velocity relative to the water;

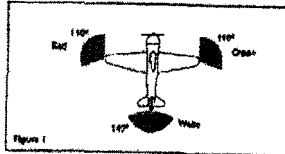
(e) under command- an aeroplane on the surface of the water is "under command" when it is able to execute manoeuvres as required by the Convention on the International Regulations for Prevention of Collisions at Sea, 1972 for the purpose of avoiding other vessels;



- (f) under way- an aeroplane on the surface of the water is "under way" when it is not aground or moored to the ground or to any fixed object on the land or in the water;
- (g) vertical planes- planes perpendicular to the horizontal plane;
- (h) visible: visible on a dark night with a clear atmosphere.

(2) An aircraft when in flight shall be equipped with the following navigation lights as illustrated in Figure 1 here below-

- (a) a red light projected above and below the horizontal plane through angle of coverage L;
- (b) a green light projected above and below the horizontal plane through angle of coverage R;
- (c) a white light projected above and below the horizontal plane rearward through angle of coverage A.

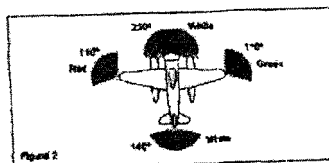


(3) The following lights shall be displayed on the water in each of the following circumstances-

- (a) when under way, appearing as steady unobstructed lights, as illustrated in figure 2-
  - (i) a red light projected above and below the horizontal through angle of coverage L;
  - (ii) a green light projected above and below the horizontal through angle of coverage R;
  - (iii) a white light projected above and below the horizontal through angle of coverage A; and
  - (iv) a white light projected through angle of coverage F; and

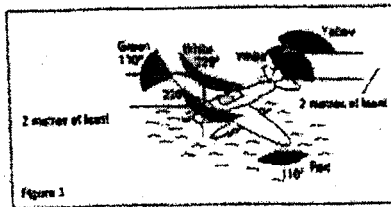
Provided that-

- (v) the lights described in (3) (a) (i), (ii) and (iii) shall be visible at a distance of at least 3.7Km (2NM); and
- (vi) the light described in (3)(a)(iv) should be visible at a distance of 9.3Km (5NM) when fitted to an aeroplane of 20 m or more in length or visible at a distance of 5.6 Km (3NM) when fitted to an aeroplane of less than 20 m in length.



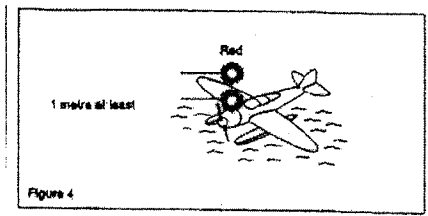
(b) when towing another vessel or aeroplane, appearing as steady unobstructed lights, as illustrated in figure 3-

- (i) the lights described in (3) (a);
- (ii) a second light having the same characteristics as the light described in (3) (a)(iv) and mounted in a vertical line at least 2 m above or below it; and
- (iii) a yellow light having otherwise the same characteristics as the light described in (3) (a) (iii) and mounted in a vertical line at least 2 m above it.



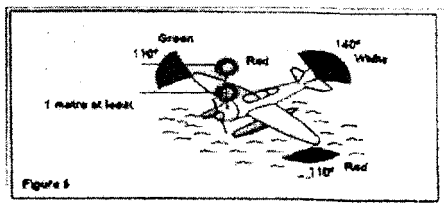
(c) when being towed, appearing as steady unobstructed lights, the lights described in (3) (a) (i) to (iii);

(d) when not under command and not making way, as illustrated in figure 4, two steady red lights placed where they can best be seen, one vertically over the other and not less than 1 m apart, and of such a character as to be visible all around the horizon at a distance of at least 3.7 Km (2NM);



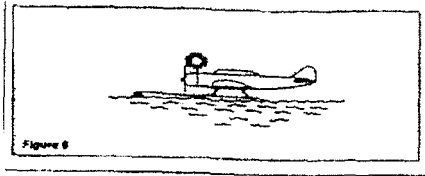
(e) when making way but not under command, as illustrated in figure 5, the lights described in (3) (d) plus the lights described in (3) (a) (i) to (iii); and

Provided that the display of lights prescribed in (3) (d) and (3)(e) shall be taken by other aircraft as signals that the aeroplane showing them is not under command and cannot therefore get out of the way and are not signals of aeroplanes in distress and requiring assistance;

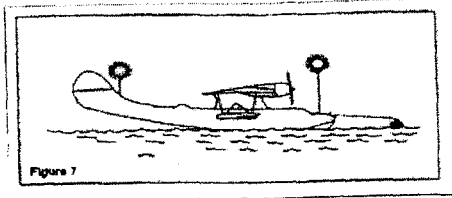


(f) when at anchor-

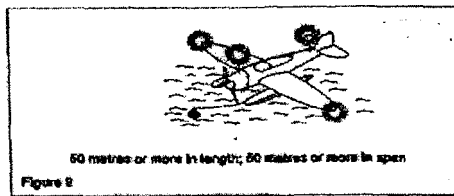
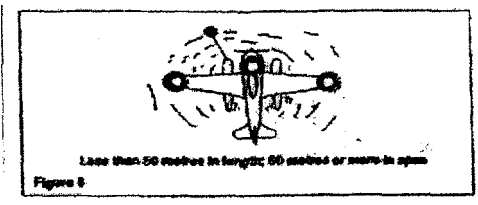
- (i) if less than 50 m in length, where it can best be seen, a steady white light, as illustrated in Figure 6, visible all around the horizon at a distance of at least 3.7 Km (2NM);



- (ii) if 50 m or more in length, where they can best be seen, a steady white forward light and a steady white rear light, as illustrated in Figure 7, both visible all around the horizon at a distance of at least 5.6 Km (3NM);



- (iii) if 50 m or more in span a steady white light on each side, as illustrated in Figures 8 and 9, to indicate the maximum span and visible, so far as practicable, all around the horizon at a distance of at least 1.9 Km (1 NM);



- (g) when aground, the lights prescribed in (3)(g) and in addition two steady red lights in vertical line, at least 1 m apart so placed as to be visible all around the horizon.

### ***Failure of lights by night***

19. In the event of the failure of any light which is required by these Regulations to be displayed at night, if the light cannot be immediately repaired or replaced, the pilot in command shall not depart from the aerodrome and, if in flight, shall land as soon as the PIC can safely do so, unless authorised by the appropriate air traffic control unit to continue the flight.

***Conditions for lights to be displayed by an aircraft***

20. (1) Except as provided by sub-regulation (5), a pilot in command (PIC) when operating an aircraft during the period from sunset to sunrise or any other period which may be prescribed by the Authority shall display-

- (a) anti-collision lights intended to attract attention to the aircraft; and
- (b) navigation lights intended to indicate the relative path of the aircraft to an observer and other lights shall not be displayed if they are likely to be mistaken for these lights.

(2) Except as provided by sub-regulation (5), from sunset to sunrise or during any other period prescribed by the Authority-

- (a) all aircraft moving on the movement area of an aerodrome shall display navigation lights intended to indicate the relative path of the aircraft to an observer and other lights shall not be displayed if they are likely to be mistaken for these lights;
- (b) unless stationary and otherwise adequately illuminated, all aircraft on the movement area of an aerodrome shall display lights intended to indicate the extremities of their structure;
- (c) all aircraft operating on the movement area of an aerodrome shall display lights intended to attract attention to the aircraft; and
- (d) all aircraft on the movement area of an aerodrome whose engines are running shall display lights which indicate that fact.

(3) Except as provided by sub-regulation (5), all aircraft in flight and fitted with anti-collision lights to meet the requirement of sub-regulation (1) (a) shall display the lights also outside the period specified in sub-regulation (1).

(4) Except as provided by sub-regulation (5), all aircraft-

- (a) operating on the movement area of an aerodrome and fitted with anti-collision lights to meet the requirement of sub-regulation (2) (c); or
- (b) on the movement area of an aerodrome and fitted with lights to meet the requirement of sub-regulation (2) (d);

shall display the lights also outside the period specified in sub-regulation (2).

(5) A PIC shall be permitted to switch off or reduce the intensity of any flashing lights fitted to meet the requirements of sub-regulations (1), (2), (3) and (4) if they do or are likely to-

- (a) adversely affect the satisfactory performance of duties; or
- (b) subject an outside observer to harmful dazzle.

***Balloons, kites, airships, gliders and parascending parachutes***

21. (1) No person shall, within Swaziland-

- (a) fly a captive balloon or kite at a height of more than 200 feet above the ground level or within 200 feet of any vessel, vehicle or structure;
- (b) fly a captive balloon within 3 nautical miles of an aerodrome;
- (c) fly a balloon exceeding 6 feet in any linear dimension at any stage of its flight, including any basket or other equipment attached to the balloon, in controlled airspace;
- (d) fly a kite within 3 nautical miles of an aerodrome;
- (e) moor an airship;
- (f) fly a free balloon at night; or
- (g) launch a glider or parascending parachute by winch and cable or by ground tow to a height of more than 60 metres above ground level;
- (h) without the permission in writing of the Authority, and in accordance with any conditions subject to which the permission may be granted.

(2) A captive balloon when in flight shall not be left unattended unless it is fitted with a device which ensures automatic deflation if it breaks.

#### ***Captive Balloons and kites***

22. (1) A captive balloon or kite while flying at night at a height exceeding 200 feet above the surface shall display lights as follows-

- (a) a group of two steady lights consisting of a white light placed 12 feet above a red light, both being of at least 5 candelas and showing in all directions, the white light being placed not less than 15 feet or more than 30 feet below the basket, or if there is no basket, below the lowest part of the balloon or kite;
- (b) on the mooring cable, at intervals of not more than 1,000 feet measured from the group of lights referred to in paragraph (a), groups of two lights of the colour and power and in the relative positions specified in that paragraph, and if the lowest group of lights is obscured by cloud, an additional group below the cloud base;
- (c) on the surface, a group of 3 flashing lights arranged in a horizontal plane at the apexes of a triangle, approximately equilateral, each side of which measured at least 80 feet, one side of the triangle shall be approximately at right angles to the horizontal projection of the cable and shall be delimited by 2 red lights, the third light shall be a green light so placed that the triangle encloses the object on the surface to which the balloon or kite is moored.

(2) A captive balloon while flying by day at a height exceeding 200 feet above the surface shall have attached to its mooring cable at intervals of not more than 600 feet measured from the basket, or, if there is no basket, from the lowest part of the balloon, tubular streamers not less than 16 inches in diameter and 6 feet in length and marked with alternate bands of red and white 20 inches wide.

(3) A kite flown in the circumstances referred to in sub-regulation (2) shall have attached to its mooring cable either-

- (a) tubular streamers as specified in sub-regulation (2); or
- (b) at intervals of not more than 300 feet measured from the lowest part of the kite, not less than 30 streamers of 32 inches long and one foot wide at their widest part and marked with alternate bands of red and white 4 inches wide.

### *Airships*

23. (1) Except as provided in sub-regulation (2), an airship while flying at night shall display the following steady lights-

- (a) a white light of at least 5 candelas showing through angles of 110 degrees from dead ahead to each side in the horizontal plane;
- (b) a green light of at least 5 candelas showing to the starboard side through an angle of 110 degrees from dead ahead in the horizontal plane;
- (c) a red light of at least 5 candelas showing to the port side through an angle of 110 degrees from dead ahead in the horizontal plane; and
- (d) a white light of at least 5 candelas showing through angles of 70 degrees from dead ahead astern to each side in the horizontal plane.

(2) An airship while flying at night shall display, if it is not under command, or has its engines voluntarily stopped, or is being towed, the following steady lights-

- (a) the white lights referred to in sub-regulations (1) (a) and (1) (d) of sub-regulation (1);
- (b) two red lights, each of at least 5 candles and showing in all directions suspended below the control car so that one is at least 12 feet above the other and at least 25 feet below the control car; and
- (c) if an airship is making way but not airborne, the green and red lights referred to in sub-regulation (1)(b) and (1)(c).

(3) An airship while picking up its moorings, notwithstanding that it is not under command, shall display only the lights specified in sub-regulation (1).

(4) An airship, while moored within Swaziland by night, shall display the following lights-

- (a) when moored to a mooring mast, at or near the rear, a white light of at least 5 candelas showing in all directions; and
- (b) a white light of at least 5 candelas showing through angles of 70 degrees from dead astern to each side in the horizontal plane.

(5) An airship while flying by day, if it is not under command, or has its engines voluntarily stopped or is being towed, shall display two black balls suspended below the control car so that one is at least 12 feet above the other and at least 25 feet below the control car.

(6) For the purpose of this regulation-

- (a) an airship is deemed not to be under command when it is unable to execute a manoeuvre which it may be required to execute by or under these Regulations;

- (b) an airship is deemed to be making way when it is not moored and is in motion relative to the air.

***Anti- collision light***

24. (1) When operating by day, an aircraft fitted with an anti-collision light shall display that light in flight.

(2) An aircraft shall display, when stationary on the apron by day or night with engines running, a red anti-collision light when fitted.

(3) When operating by night all aircraft shall display anti-collision lights, intended to attract attention to the aircraft.

(4) When operating an anti-collision light, the light shall be a flashing or rotating red light which shall show in all directions within 30 degrees above and 30 degrees below the horizontal plane of the aircraft.

(5) In the event of a failure of anti-collision lights when flying by day, an aircraft may continue to fly if the lights will be repaired at the earliest practicable opportunity.

***Simulated instrument flight conditions***

25. (1) No person shall operate an aircraft in simulated instrument flight conditions unless-

- (a) that aircraft has fully functioning dual controls;
- (b) a qualified pilot occupies a control seat to act as safety pilot for the person who is flying under simulated instrument conditions;
- (c) the safety pilot has adequate vision forward and to each side of the aircraft, or a competent observer in communication with the safety pilot shall occupy a position in the aircraft from which the observer's field of vision adequately supplements the vision of the safety pilot.

(2) No person shall engage in simulated instrument flight conditions during commercial air transport operations.

***Practice instrument approaches.***

26. Within Swaziland, an aircraft shall not carry out instrument approach practices when flying in visual meteorological conditions unless-

- (a) the appropriate air traffic control unit has previously been informed that the flight is to be made for the purpose of instrument approach practice; and
- (b) if the flight is not being carried out in simulated instrument flight conditions, an observer approved by the Authority is carried in a position in the aircraft that the observer has an adequate field of vision and can readily communicate with the pilot flying the aircraft.

***Aerodromes not having air traffic control units***

27. (1) No person shall fly within a zone which the pilot in command (PIC) knows or ought reasonably to know to be the aerodrome traffic zone of an aerodrome which does not have an air traffic control unit, except for the purpose of taking off, landing or observing the signals in the signals area with a view to landing, and an aircraft flying within that zone for the purpose of observing the signals shall remain clear of cloud and at least 500 feet above the level of the aerodrome.

(2) The PIC flying in the zone referred to in sub-regulation (1) or moving on that aerodrome shall-

- (a) conform to the pattern of traffic formed by other aircraft, or keep clear of the airspace in which the pattern is formed;
- (b) make all turns to the left unless ground signals indicate otherwise; and
- (c) take off and land in the direction indicated by the ground signals or, if no such signals are displayed, into the wind, unless good aviation practice demands otherwise.

(3) No person shall land an aircraft on a runway at an aerodrome unless the runway is clear of other aircraft.

(4) Where takeoffs and landings are not confined to a runway-

- (a) an aircraft when landing shall leave clear on its left any aircraft which has already landed or is already landing or is about to take off, and if such aircraft is obliged to turn, it shall turn to the left after the PIC of the aircraft has satisfied himself or herself that such action will not interfere with other traffic movements; and
- (b) an aircraft about to take off shall take up position and manoeuvre in a way that leaves clear on its left any aircraft which is already taking off or is about to take off.

(5) An aircraft after landing shall move clear of the landing area in use as soon as it is possible to do so.

***Aerodromes having air traffic control units***

28. (1) A pilot in command (PIC) shall not fly the aircraft within a zone which the PIC knows or ought reasonably to know to be the aerodrome having an air traffic control (ATC) unit except for the purpose of taking off, landing or observing the signals area with a view to landing, unless the PIC has the permission of the appropriate ATC unit.

(2) The PIC flying in the aerodrome traffic zone of an aerodrome having an ATC unit or moving on the manoeuvring area of that aerodrome shall-

- (a) because a continuous watch to be maintained on the appropriate radio frequency notified for ATC communications at the aerodrome, or if this is not possible, cause a watch to be kept for any instructions that may be issued by visual means;
- (b) not taxi, take off or land except with the permission of the ATC unit; and
- (c) comply with the provisions of regulation 21 as if the aerodrome did not have an ATC unit, unless the PIC has the permission of the ATC unit at the aerodrome or has been instructed by that unit, to do otherwise.



***Operations on or in the vicinity of a controlled aerodrome.***

29. (1) No person shall operate an aircraft to, from, through or on an aerodrome having an operational control tower unless two-way communications are maintained between that person and the control tower.

(2) When arriving at an aerodrome, a pilot in command (PIC) shall establish communications required by sub-regulation (1) on prior to 4 nautical miles from the aerodrome when operating from the surface up to and including 2,500 feet.

(3) When departing from an aerodrome, a PIC shall establish communications with the control tower prior to taxi.

(4) A person shall not, at any aerodrome with an operating control tower, operate an aircraft on a runway or taxiway or takeoff or land an aircraft, unless an appropriate clearance has been received from the air traffic control unit.

(5) A clearance to "taxi to"-

(a) the takeoff runway-

(i) is not a clearance to cross or taxi on to that runway; and

(ii) authorizes the PIC to cross other runways during the taxi to the assigned runway;

(b) any other point on the aerodrome is a clearance to cross all runways that intersect the taxi route to the assigned point.

(6) If the radio fails or two-way communication is lost, a PIC may continue a visual flight rules (VFR) flight operation and land if-

(a) the weather conditions are at or above basic VFR minimums; and

(b) clearance to land is received by light signals.

(7) During instrument flight rules operations, the two-way communications failure procedures prescribed in regulation 58 shall apply.

***Access to and movement in the manoeuvring Area***

30. (1) No person shall enter or drive a vehicle on the manoeuvring area of an aerodrome without the permission of the aerodrome control tower in the case of a controlled aerodrome or in the case of an uncontrolled aerodrome, the person in charge of the aerodrome, and in accordance with any conditions subject to which that permission may have been granted.

(2) No person shall move or move a vehicle on the manoeuvring area of an aerodrome having an air traffic control unit without the permission of that unit and in accordance with any conditions subject to which that permission may have been granted.

(3) Any permission granted for the purpose of this regulation may be granted either in respect of persons or vehicles generally or in respect of any particular person or vehicle or any class of persons or vehicles.

## FLIGHT PLANS

***Pre-flight action***

31. (1) A pilot in command (PIC) shall, before commencing a flight, be familiar with all available information appropriate to the intended operation.

(2) Pre-flight action by a PIC, for a flight away from the vicinity of the place of departure and for every flight under the instrument flight rules shall include-

- (a) a careful study of available current weather reports and forecasts taking into consideration fuel requirements; and
- (b) an alternative course of action if the flight cannot be completed as planned.

(3) A PIC who is unable to communicate by radio with an air traffic control unit at the aerodrome of destination shall not begin a flight to an aerodrome within a control zone if the information which it is reasonably practicable for the PIC to obtain indicates that the flight will arrive at that aerodrome when the ground visibility is less than 8 kilometres or the cloud ceiling is less than 1,500 feet, unless the PIC has obtained from an ATC unit at that aerodrome permission to enter the aerodrome traffic zone.

***Flight plan***

32. Except as authorized by the Authority a person shall not commence a flight if he or she has not filed a flight plan.

***Submission of a flight plan***

33. (1) Information relating to an intended flight or portion of a flight, to be provided to air traffic services (ATS) units, shall be in the form of a flight plan.

(2) A pilot in command (PIC) shall, prior to operating one of the following, file a flight plan for-

- (a) any flight or portion of a flight, 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 ATS 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 ATS authority to facilitate co-ordination with appropriate military units or with ATC units in adjacent states in order to avoid the possible need for interception for the purpose of identification;
- (e) any flight across international borders; and
- (f) any flight departing from an aerodrome manned by the Authority.

(3) A PIC shall submit a flight plan before departure to the appropriate ATS reporting office or during flight, transmit to the appropriate ATS unit, unless arrangements have been made for submission of a repetitive flight plan.

(4) Unless otherwise prescribed by the Authority, a PIC shall submit a flight plan to the appropriate ATS unit-

- (a) at least 60 minutes before departure and shall be valid for 60 minutes for instrument flight rules (IFR) flights or 120 minutes for visual flight rules (VFR) flights; or
- (b) if submitted during flight, at a time which shall ensure its receipt by the appropriate ATC unit at least 10 minutes before the aircraft is estimated to reach the-
  - (i) intended point of entry into a control area or advisory airspace; or
  - (ii) point of crossing an airway or advisory route.

(5) Where a through flight plan, containing particulars as may be notified is submitted to and accepted by an ATS unit in respect of a flight through a number of intermediate aerodromes, this regulation shall be deemed to have been satisfied in respect of each sector of the flight.

(6) An ATC unit may exempt the PIC from the requirements of this regulation in respect of an intended flight which is to be made in a notified local flying area and in which the aircraft will return to the aerodrome of departure without making an intermediate landing.

(7) In order to comply with the IFR, before an aircraft either takes off from a point within any controlled airspace, or enters any controlled airspace, or in other circumstances prescribed for this purpose, the PIC shall cause a flight plan to be communicated to the appropriate ATC unit and shall obtain an ATC clearance based on that flight plan.

(8) The PIC after flying in controlled airspace shall, unless the PIC has requested the appropriate ATC unit to cancel the flight plan, forthwith inform that unit when the aircraft lands within or leaves that controlled airspace.

### ***Contents of a flight plan***

34. (1) A person filing an instrument flight rules or visual flight rules flight plan shall include in the flight plan the following information-

- (a) aircraft identification;
- (b) flight rules and type of flight;
- (c) number and type of aircraft and wake turbulence category;
- (d) equipment;
- (e) departure aerodrome;
- (f) estimated off-block time;
- (g) cruising speed;
- (h) cruising level;
- (i) route to be followed;
- (j) destination aerodrome and total estimated elapsed time;

- (k) alternate aerodrome;
- (l) fuel endurance;
- (m) total number of persons on board;
- (n) emergency and survival equipment; and
- (o) other information.

(2) A flight plan, for whatever purpose it is submitted, shall contain information, as applicable-

- (a) on relevant items up to and including an alternate aerodrome regarding the whole route or the portion of the route for which the flight plan is submitted; and
- (b) on all other items when so prescribed by the Authority or when otherwise deemed necessary by the person submitting the flight plan.

#### ***Changes to a flight plan.***

35. (1) Where a change occurs to a flight plan submitted for an instrument flight rules flight or a visual flight rules (VFR) flight operated as a controlled flight, the pilot in command (PIC) shall report that change as soon as practicable to the appropriate air traffic services (ATS) unit.

(2) In the case of a VFR flight other than that operated as a controlled flight, the PIC shall report significant changes to a flight plan as soon as practicable to the appropriate ATS unit.

(3) Any information submitted prior to departure regarding fuel endurance or total number of persons carried on board, if incorrect at the time of departure, constitutes a significant change to the flight plan and as such shall be reported.

#### ***Closing a flight plan***

36. (1) A pilot in command (PIC) shall make a report of arrival in person or by radio or via data link to the appropriate air traffic services (ATS) unit at the earliest possible moment after landing at the destination aerodrome, unless air traffic control automatically closes the flight plan.

(2) When a flight plan has been submitted only in respect of a portion of a flight, other than the remaining portion of a flight to destination, the PIC shall, when required, close it by an appropriate report to the relevant ATS unit.

(3) When no air traffic services unit exists at the arrival aerodrome, the PIC shall contact the nearest ATS unit to close the flight plan immediately after landing and by the quickest means available.

(4) When communication facilities at the arrival aerodrome are known to be inadequate and alternate arrangements for the handling of arrival reports on the ground are not available, the PIC shall immediately prior to landing, transmit to the appropriate ATS unit, a message comparable to an arrival report, where such a report is required.

(5) The transmission referred to in sub-regulation (4) shall normally be made to the aeronautical station serving the ATS unit in charge of the flight information region in which the aircraft is operated.

(6) A PIC shall include the following elements of information in the arrival reports-

- (a) aircraft identification;
- (b) departure aerodrome;
- (c) destination aerodrome, in the case of a diversionary landing;
- (d) arrival aerodrome; and
- (e) time of arrival.

(7) The PIC of an aircraft who has caused notice of the intended arrival of an aircraft at any aerodrome to be given to the ATS unit or other authority at that aerodrome shall ensure that the ATS unit or other authority at that aerodrome is informed as quickly as possible of any change of intended destination and any estimated delay in arrival of 45 minutes or more.

## SIGNALS

### *Universal aviation signals*

37. (1) Where a signal is given or displayed, or whenever any marking specified in regulations 42 up to and including 44 is displayed by any person in an aircraft or at an aerodrome or at any other place which is being used by aircraft for landing or take-off, the signal shall, when given or displayed in Swaziland, have the meaning assigned to it, and no other signals likely to be confused with them shall be used.

(2) Upon observing or receiving any of the signals specified in sub-regulation (1), a pilot in command shall take any action required by the interpretation of the signal specified in these Regulations.

(3) A signalman shall be responsible for providing standard marshalling signals to aircraft in a clear and precise manner using the signals shown in these Regulations.

(4) No person shall guide an aircraft unless trained, qualified and approved by the relevant appropriate authority to carry out the functions of a signalman.

(5) The signalman shall wear a distinctive fluorescent identification vest to allow the flight crew to identify that the signalman is the person responsible for the marshalling operation.

(6) Daylight-fluorescent wands, table-tennis bats or gloves shall be used for all signaling by all participating ground staff during daylight hours, while illuminated wands shall be used at night or in low visibility.

(7) None of the provisions in these Regulations shall prevent the use by an aircraft in distress of any means at its disposal to attract attention and make known its position.

### *Distress signals*

38. The following signals, used either together or separately, mean that grave and imminent danger threatens, and immediate assistance is requested-

- (a) a signal made by radiotelegraphy or by any other signalling method consisting of the group SOS (... - - - . . . in the Morse Code);
- (b) a radiotelephony distress signal consisting of the spoken word MAYDAY;
- (c) a distress message sent via data link which transmits the intent of the word MAYDAY;
- (d) rockets or shells throwing red lights, fired one at a time at short intervals;
- (e) a parachute flares showing a red light.

### ***Urgency signals***

39. (1) The following signals, used either together or separately, means 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 a manner as to be distinct from flashing navigation lights.

(2) 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;
- (c) an urgency message sent via data link which transmits the intent of the words PAN, PAN.

### ***Aircraft interception and interception signals***

40. (1) When intercepted by a military or government aircraft, the PIC shall comply with, by interpreting and responding to visual signals as shown in Table 2.

(2) The intercepting aircraft shall interpret visual signals from an intercepted aircraft as shown in Table 3.

**TABLE 2**  
**SIGNALS INITIATED BY INTERCEPTING**  
**AIRCRAFT**

Series	INTERCEPTING Aircraft Signals	Meaning	INTERCEPTING Aircraft Responds	Meaning
1	<p>DAY or NIGHT-Rocking aircraft and flashing navigational lights at 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><b>Note 1.</b> ? Meteorological conditions or terrain may require the intercepting aircraft to reverse the positions and direction of turn given above series 1.</p> <p><b>Note 2.</b> ?If the intercepted 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</p>	You have been intercepted. Follow me	DAY or NIGHT-Rocking aircraft. Flashing navigational lights at irregular intervals and following.	Understood, will comply
2	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.	You may proceed	DAY or NIGHT- Rocking the aircraft	Understood, will comply
3	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 makes a landing approach, coming to hover near to the landing area.	Land at this aerodrome	DAY or NIGHT- Lowering landing gear (if fitted), lights 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	Understood, will comply

**TABLE 3**  
**SIGNALS INITIATED BY INTERCEPTED AIRCRAFT**

Series	INTERCEPTING Aircraft Signals	Meaning	INTERCEPTING Aircraft Responds	Meaning
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 300m (1000 ft) but not exceeding 600m (2000 ft) (in the case of a helicopter, at a height exceeding 50m (170ft) but not exceeding 100m (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.  If it is decided to release the intercepted aircraft, the intercepting aircraft uses the Series 2 signals prescribed for intercepting aircraft.	Understood, follow me.
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	Understood
6	DAY or NIGHT? Irregular flashing of all available lights	In distress	DAY or NIGHT? Use series 2 signals prescribed for intercepting aircraft.	Understood

***Visual signals to warn an unauthorized aircraft entering notified airspace***

41. A pilot in command shall take remedial action that may be necessary, when by day or night, a series of projectiles is discharged from the ground at intervals of 10 seconds, each showing, on bursting, red and green lights or stars indicating to an unauthorized aircraft that it is flying in or about to enter a restricted, prohibited or danger area.

***Signals for aerodrome traffic***

42. (1) Aerodrome controllers shall use and pilots shall obey the following lights and pyrotechnic signals shown in Table 4 here below and illustrated in Figure 10.

(2) Pilots shall acknowledge aerodrome controller signals as follows-

(a) when in flight-

- (i) during the hours of daylight by rocking the wings of the aircraft, except that this signal shall 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 landing lights of the aircraft 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 ailerons or rudder of the aircraft;
  - (ii) during the hours of darkness by flashing on and off twice the landing lights of the aircraft or, if not so equipped, by switching on and off twice its navigation lights.
- (3) Aerodrome authorities shall use the visual ground signals as shown in figures 11 to 20 during the situations indicated in the signals.

TABLE 4  
LIGHT AND PYROTECHNIC SIGNALS FROM  
AERODROME CONTROL

Light		From Aerodrome control tower to -	
		Aircraft in Flight	Aircraft on the ground
Directed towards aircraft concerned	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 land
	Series of red flashes	Aerodrome unsafe, do not land	Taxi clear of landing area in use
	Series of white flashes	Land at this aerodrome	
	Red pyrotechnic	Notwithstanding any previous instructions do not land for the time being	

\*Clearances to land and to taxi will be given in due course

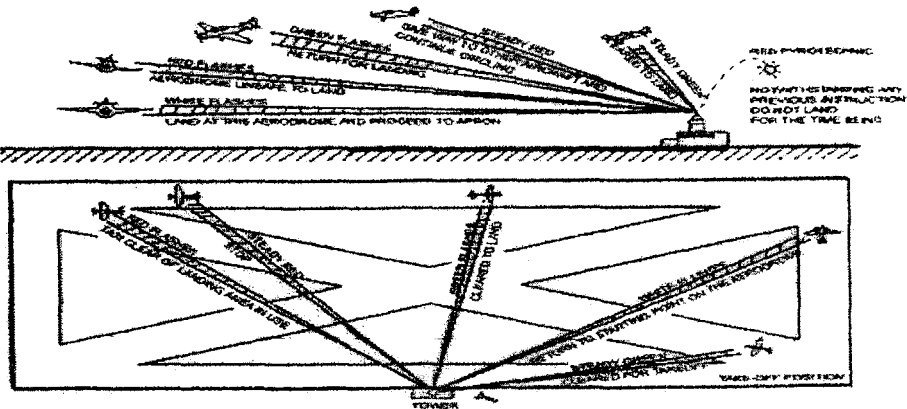


Figure 10 - light and pyrotechnic signals from aerodrome control.

- (a) prohibition of landing - a horizontal red square panel with yellow diagonals, as shown in Figure 11 when displayed in a signal area indicates that landings are prohibited and that the prohibition is liable to be prolonged;

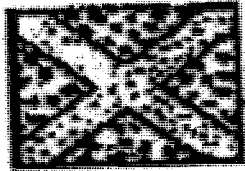


Figure 11

- (b) need for special precautions while approaching or landing - a horizontal red square panel with one yellow diagonal, as shown in Figure 12 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;

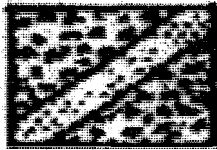


Figure 12

- (c) use of runways and taxiways:

- (i) a horizontal white dumb-bell, as shown in Figure 13 when displayed in a signal area indicates that aircraft are required to land, take off and taxi on runways and taxiways only;



Figure 13

- (ii) the same horizontal white dumb-bell as in Figure 13 but with a black bar placed perpendicular to the shaft across each circular portion of the dumb-bell, as shown in Figure 14 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 14

- (d) closed runways or taxiways - crosses of a single contrasting colour, yellow or white, as shown in Figure 15, displayed horizontally on runways and taxiways or parts thereof indicate an area unfit for movement of aircraft;

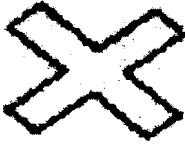


Figure 15

- (e) directions for landing or take-off-

- (i) a horizontal white or orange landing T, as shown in Figure 16, indicates the direction to be used by aircraft for landing and take-off, which shall be in a direction parallel to the shaft of the T towards the cross arm and when used at night, the landing T is either illuminated or outlined in white coloured lights.

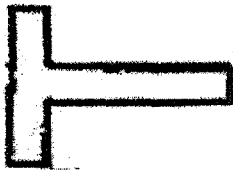


Figure 16

- (ii) a set of two digits, as shown in Figure 17, 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 17

- (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, as shown in Figure 18 indicates that turns are to be made to the right before landing and after take-off;



Figure 18

- (g) air traffic services reporting office- the letter C displayed vertically in black against a yellow background, as shown in Figure 19 indicates the location of the air traffic control reporting office;

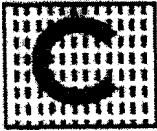


Figure 19

- (h) glider flights in operation- a double white cross displayed horizontally, as shown in Figure 20 in the signal area indicates that the aerodrome is being used by gliders and that glider flights are being performed;

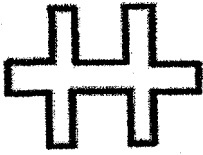


Figure 20

- (i) helicopter operations - a white letter H displayed horizontally as shown in figure 21 indicates that helicopters shall take off and land within the designated area;

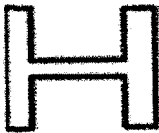


Figure 21

### ***Marshalling signals-signalman to a pilot***

43. (1) The marshalling signals shown in figures 22 to 56 below shall be used from a signalman to a pilot of an aircraft.

(2) The 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-


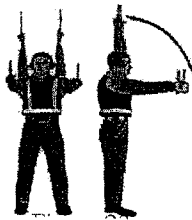




- (a) for fixed-wing aircraft, the signalman shall be positioned forward of the left-wing tip within view of the pilot; and
- (b) for helicopters, where the signalman can best be seen by the pilot.


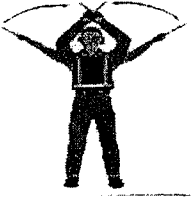




(3) The meaning of the relevant signals remains the same if bats, illuminated wands or torch lights are held.



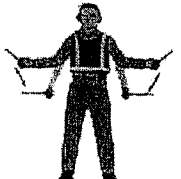

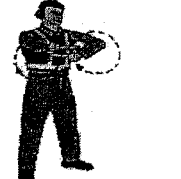

(4) The aircraft engines are numbered, for the signalman facing the aircraft, from right to left (i.e. No. 1 engine being the port outer engine).




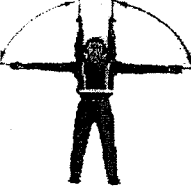
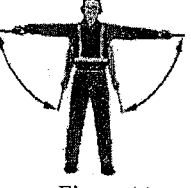

(5) Signals marked with an asterisk are designed for use to hovering helicopters.

(6) Prior to using the signals, as shown in Figures 22 to 56 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.



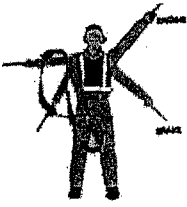



<p>Figure 22</p> 	<p><b>Wingwalker/guide</b>          Raise right hand above head level with wand pointing up; move left-hand wand pointing down toward body.  <i>Note - This signal provides an indication by a person positioned at the aircraft wing tip, to the pilot/marshaller/push-back operator, that the aircraft movement on/off a parking position would be unobstructed.</i></p>
<p>Figure 23</p> 	<p><b>Identify gate</b>          Raise fully extended arms straight above head with wands pointing up.</p>
<p>Figure 24</p> 	<p><b>Proceed to next signalman or as directed by tower/ground control</b>          Point both arms upward; move and extend arms outward to sides of body and point with wands to direction of next signalman or taxi area.</p>
<p>Fig 25</p> 	<p><b>Straight ahead</b>          Bend extended arms at elbows and move wands up and down from chest height to head.</p>
	<p><b>Turn left (from pilot's point of view)</b>          With right arm and wand extended at a 90-degree angle to body, make "come ahead" signal with left hand. The rate of signal motion indicates to pilot the rate of aircraft turn.</p>
<p>Figure 27</p> 	<p><b>Turn right (from pilot's point of view)</b>          With left arm and wand extended at a 90-degree angle to body, make "come ahead" signal with right hand. The rate of signal motion indicates to pilot the rate of aircraft turn.</p>


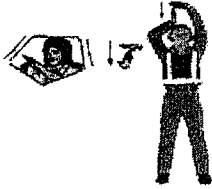
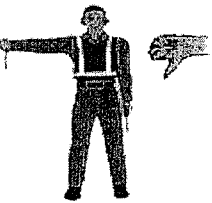
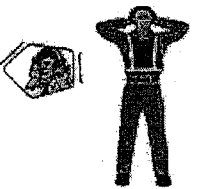
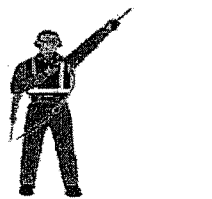
 <p>Figure 28</p>	<p><b>Normal stop</b> Fully extend arms and wands at a 90-degree angle to sides and slowly move to above head until wands cross.</p>
 <p>Fig 26</p>	<p><b>Emergency stop</b> Abruptly extend arms and wands to top of head, crossing wands.</p>
 <p>Figure 30</p>	<p><b>Set brakes</b> Raise hand just above shoulder height with open palm. Ensuring eye contact with flight crew, close hand into a fist. Do not move until receipt of "thumbs up" acknowledgement from flight crew.</p>
 <p>Figure 31</p>	<p><b>Release brakes</b> Raise hand just above shoulder height with hand closed in a fist. Ensuring eye contact with flight crew, open palm. Do not move until receipt of "thumbs up" acknowledgement from flight crew.</p>
 <p>Figure 32</p>	<p><b>Chocks inserted</b> With arms and wands fully extended above head, move wands inward in a "jabbing" motion until wands touch. Ensure acknowledgement is received from flight crew.</p>
 <p>Figure 33</p>	<p><b>Chocks removed</b> With arms and wands fully extended above head, move wands outward in a "jabbing" motion. Do not remove chocks until authorized by flight crew.</p>

 <p>Figure 34</p>	<p><b><i>Start engine(s)</i></b>          Raise right arm to head level with wand pointing up and start a circular motion with hand; at the same time, with left arm raised above head level, point to engine to be started.</p>
 <p>Figure 35</p>	<p><b><i>Cut engines</i></b>          Extend arm with wand forward of body at shoulder level; move hand and wand to top of left shoulder and draw wand to top of right shoulder in a slicing motion across throat.</p>
 <p>Figure 36</p>	<p><b><i>Slow down</i></b>          Move extended arms downwards in a "patting" gesture, moving wands up and down from waist to knees.</p>
 <p>Figure 37</p>	<p><b><i>Slow down engine(s) on indicated side</i></b>          With arms down and wands toward ground, wave either right or left wand up and down indicating engine(s) on left or right side respectively should be slowed down.</p>
 <p>Figure 38</p>	<p><b><i>Move back</i></b>          With arms in front of body at waist height, rotate arms in a forward motion. To stop rearward movement, use signal 6 a) or 6 b).</p>
 <p>Figure 39</p>	<p><b><i>Turns while backing (for tail to starboard)</i></b>          Point left arm with wand down and bring right arm from overhead vertical position to horizontal forward position, repeating right-arm movement.</p>

 <p>Figure 40</p>	<p><b><i>Turns while backing (for tail to port)</i></b>  Point right arm with wand down and bring left arm from overhead vertical position to horizontal forward position, repeating left-arm movement.</p>
 <p>Figure 41</p>	<p><b><i>Affirmative/all clear</i></b>  Raise right arm to head level with wand pointing up or display hand with "thumbs up"; left arm remains at side by knee.  <b>Note.</b> - This signal is also used as a technical/servicing communication signal.</p>
 <p>Figure 42</p>	<p><b><i>*Hover</i></b>  Fully extend arms and wands at a 90-degree angle to sides.</p>
 <p>Figure 43</p>	<p><b><i>*Move upwards</i></b>  Fully extend arms and wands at a 90-degree angle to sides and, with palms turned up, move hands upwards. Speed of movement indicates rate of ascent.</p>
 <p>Figure 44</p>	<p><b><i>*Move downwards</i></b>  Fully extend arms and wands at a 90-degree angle to sides and, with palms turned down, move hands downwards. Speed of movement indicates rate of descent.</p>
 <p>Figure 45</p>	<p><b><i>*Move horizontally left (from pilot's point of view)</i></b>  Extend arm horizontally at a 90-degree angle to right side of body. Move other arm in same direction in a sweeping motion.</p>



 <p>Figure 46</p>	<p><b><i>*Move horizontally right (from pilot's point of view)</i></b>          Extend arm horizontally at a 90-degree angle to left side of body. Move other arm in same direction in a sweeping motion.</p>
 <p>Figure 47</p>	<p><b><i>*Land</i></b>          Cross arms with wands downwards and in front of body.</p>
 <p>Figure 48</p>	<p><b><i>Fire</i></b>          Move right-hand wand in a "fanning" motion from shoulder to knee, while at the same time pointing with left-hand wand to area of fire.</p>
 <p>Figure 49</p>	<p><b><i>Hold position/stand by</i></b>          Fully extend arms and wands downwards at a 45-degree angle to sides. Hold position until aircraft is clear for next manoeuvre.</p>
 <p>Figure 50</p>	<p><b><i>Dispatch aircraft</i></b>          Perform a standard salute with right hand and/or wand to dispatch the aircraft. Maintain eye contact with flight crew until aircraft has begun to taxi.</p>
 <p>Figure 51</p>	<p><b><i>Do not touch controls (technical/servicing communication signal)</i></b>          Extend right arm fully above head and close fist or hold wand in horizontal position; left arm remains at side by knee.</p>

 <p>Figure 52</p>	<p><b>Connect ground power (technical/servicing communication signal)</b>          Hold arms fully extended above head; open left hand horizontally and move finger tips of right hand into and touch open palm of left hand (forming a "T"). At night, illuminated wands can also be used to form the "T" above head.</p>
 <p>Figure 53</p>	<p><b>Disconnect power (technical/servicing communication signal)</b>          Hold arms fully extended above head with finger tips of right hand touching open horizontal palm of left hand (forming a "T"); then move right hand away from the left. Do not disconnect power until authorized by flight crew.</p>
 <p>Figure 54</p>	<p><b>Negative (technical/servicing communication signal)</b>          Hold right arm straight out at 90 degrees from shoulder and point wand down to ground or display hand with "thumbs down"; left hand remains at side by knee.</p>
 <p>Figure 55</p>	<p><b>Establish communication via interphone (technical/servicing communication signal)</b>          Extend both arms at 90 degrees from body and move hands to cup both ears.</p>
 <p>Figure 56</p>	<p><b>Open/close stairs (technical/servicing communication signal)</b>          With right arm at side and left arm raised above head at a 45-degree angle, move right arm in a sweeping motion towards top of left shoulder.</p> <p><i>Note-This signal is intended mainly for aircraft with the set of integral stairs at the front.</i></p>

### **Marshalling signals: pilot to a signalman**

44. A pilot shall use the signals shown in Table 5 when communicating with a Signalman on the ground-

**TABLE 5**  
**MARSHALLING SIGNALS PILOT TO GROUND SIGNALMAN**

<b>Description of Signal</b>	<b>Meaning of Signal</b>
(a) Raise arm and hand with fingers extended horizontal in front of face, then clench fist.	Brakes engaged
(b) Raise arm with fist clenched horizontally in front of face, then extend fingers.	Brakes released
(c) Arms extended palms facing outwards, move hands inwards to cross in front of face	Insert chocks
(d) Hands crossed in front of face, palms facing outwards, move arms outwards	Remove chocks
(e) Raise the number of fingers on the hand indicating the number of the engine to be started. For this purpose the aircraft engines shall be numbered in relation to the marshaller facing the aircraft, from his right to his left, for example No. 1 engine shall be the port inner engine, number 3 engine shall be the starboard inner engine and number 4 engine shall be the starboard outer engine.	Ready to start engine

### ***Time***

45. (1) A pilot in command (PIC) flying an aircraft shall use Co-ordinated Universal Time which shall be expressed in hours and minutes and, when required, seconds of the 24 hour day beginning at midnight.

(2) A PIC shall obtain a time check prior to operating a controlled flight and at such other times during the flight as may be necessary, that time check shall be obtained from an air traffic services unit unless other arrangements have been made by the operator or by the Authority.

(3) Wherever time is utilized in the application of data link communications, it shall be accurate to within one second of Co-ordinated Universal Time.

## **AIR TRAFFIC CONTROL SERVICE**

### ***Air traffic control clearances***

46. (1) A pilot in command (PIC) shall not commence a flight in an aircraft unless the PIC has obtained an air traffic control (ATC) clearance prior to operating a controlled flight or a portion of a flight as a controlled flight.

(2) A PIC shall request ATC clearance referred to in sub-regulation (1) through the submission of a flight plan to an ATC unit.

(3) Where a PIC has requested a clearance involving priority, that PIC shall submit a report explaining the necessity for such priority, if requested by the appropriate ATC unit.

(4) No person operating an aircraft on a controlled aerodrome shall taxi on the manoeuvring area without clearance from the aerodrome control tower and shall comply with any instructions given by that unit.

(5) The PIC of an aircraft shall fly in conformity with the ATC clearance issued for the flight as amended by any further instructions given by an ATC unit, and with the holding and instrument approach procedures, notified in relation to the aerodrome of destination, unless the PIC-

(a) is able to fly in uninterrupted visual meteorological conditions for so long as the PIC remains in controlled airspace; and

(b) has informed the appropriate ATC unit of his or her intention to continue the flight in compliance with visual flight rules and has requested that unit to cancel his or her instrument flight rules flight plan,

(6) If an emergency arises which requires an immediate deviation from an ATC clearance, the PIC of the aircraft shall, as soon as possible, inform the appropriate ATC unit of the deviation.

#### ***Potential re-clearance in flight***

47. (1) If prior to departure, a pilot in command anticipates that depending on fuel endurance and subject to re-clearance in flight, a decision may be taken to proceed to a revised destination aerodrome, the PIC shall notify the appropriate air traffic control units by the insertion in the flight plan of information concerning the revised route (where known) and the revised destination.

(2) The intent of sub-regulation (1) is to facilitate a re-clearance to a revised destination, normally beyond the filed destination aerodrome.

#### ***Adherence to air traffic control clearances***

48. (1) A pilot in command (PIC) shall, except as provided for in regulations 46 and 50, adhere to the current flight plan or the applicable portion of a current flight plan submitted for a controlled flight unless a request for a change has been made and clearance obtained from the appropriate air traffic control (ATC) unit or unless an emergency situation arises which necessitates immediate action by the PIC, in which event as soon as circumstances permit, after that emergency authority is exercised, the appropriate ATC unit shall be notified of the action taken and that this action has been taken under emergency authority.

(2) Sub-regulation (1) does not prohibit a PIC from cancelling an instrument flight rules clearance when operating in visual meteorological conditions or cancelling a controlled flight clearance when operating in airspace that does not require controlled flight.

(3) When operating in airspace requiring controlled flight, a PIC shall not operate contrary to ATC instructions, except in an emergency.

(4) A PIC who deviates from an ATC clearance or instructions in an emergency, shall notify ATC of that deviation as soon as possible.

#### ***Route to be flown***

49. (1) Unless otherwise authorized or directed by the appropriate air traffic control (ATC) unit, a pilot in command (PIC) of a controlled flight shall, in so far as practicable-

- (a) when on an established ATS route, operate along the defined centre line of that route; or
- (b) on any other route, operate directly between navigation facilities or points defining that route.

(2) A PIC shall notify the appropriate ATC unit of any deviation from the requirements in sub-regulation (1).

(3) A PIC of a controlled flight operating along an air traffic services route defined by reference to very high frequency omnidirectional range 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.

#### ***Air traffic Control clearance inadvertent changes***

50. (1) A pilot in command (PIC) of an aircraft shall take the following action in the event that a controlled flight inadvertently deviates from its current flight plan-

- (a) if the aircraft is off track, the PIC shall adjust the heading of the aircraft to regain track as soon as practicable;
- (b) the PIC shall inform the appropriate air traffic control (ATC) unit 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; and
- (c) the PIC shall notify the appropriate ATC unit and give a revised estimated time given as soon as possible if the time estimate for the next applicable reporting point, flight information region boundary or destination aerodrome, whichever comes first, is found to be in error in excess of 3 minutes from that notified to ATC unit, or such other period of time as is prescribed by the appropriate air traffic services authority or on the basis of air navigation regional agreements.

(2) In addition to sub-regulation (1), when an automatic dependent surveillance (ADS) agreement is in place, air traffic services unit shall be informed automatically via data link whenever changes occur beyond the threshold values stipulated by the ADS event contract.

#### ***ATC clearance: intended changes***

51. A pilot in command (PIC) requesting for air traffic control clearance changes shall include the following information in the request-

- (a) for change of cruising level-
  - (i) aircraft identification;
  - (ii) requested new cruising level and cruising speed at this level; and
  - (iii) revised time estimates, when applicable, at subsequent flight information region boundaries;
- (b) for change of route-
  - (i) destination unchanged-

- (aa) aircraft identification;
- (bb) flight rules;
- (cc) description of new route of flight including related flight plan data beginning with the position from which requested change of route is to commence;
- (dd) revised time estimates; and
- (ee) any other pertinent information;
- (ii) destination changed-
  - (aa) aircraft identification;
  - (bb) flight rules;
  - (cc) 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;
  - (dd) revised time estimate;
  - (ee) alternate aerodrome; and
  - (ff) any other pertinent information.

### ***Position reports***

52. (1) A pilot of a controlled flight shall report to the appropriate air traffic control unit, as soon as possible-

- (a) the time and level of passing each designated compulsory reporting point, except that while the aircraft is under radar control, only the passing of those reporting points specifically requested by ATC need be reported, together with any other required information, unless exempted from this requirement by the appropriate air traffic control unit under conditions specified by the Authority;
- (b) any unforecasted weather conditions encountered; and
- (c) any other information relating to the safety of flight, such as hazardous weather or abnormal radio station indications.

(2) A pilot of a controlled flight shall make position reports in relation to additional points when requested by the appropriate ATC unit.

(3) In the absence of designated reporting points, a pilot of a controlled flight shall make position reports at intervals prescribed by the Authority or specified by the appropriate ATC unit.

(4) A pilot in command of a controlled flight providing position information to the appropriate ATC unit via data link communications shall only provide voice position reports when requested.

(5) A pilot of a controlled flight shall, except when landing at controlled aerodrome, advise the appropriate ATC unit as soon as the flight ceases to be subject to ATC service.

***ATC clearances for VFR flights***

53. A pilot of a visual flight rules (VFR) flight shall comply with the provisions of regulations 46, 47, 48, 50, 51, 52 and 58 when-

- (a) operated within classes B, C and D airspace;
- (b) forming part of aerodrome traffic at controlled aerodromes; or
- (c) operated as special VFR.

***VFR flight within designated areas***

54. A pilot in command operating a visual flight rules flight within or into areas or along routes, designated by the Authority in accordance with regulation 33 (2)(c) or (d) shall maintain continuous air-ground voice communication watch on the appropriate communication channel of, and report its position as necessary to, the air traffic services unit providing flight information service.

***Weather deterioration below visual meteorological conditions***

55. A pilot in command of a visual flight rules (VFR) flight operated as a controlled flight shall, when it becomes evident that flight in visual meteorological conditions (VMC) in accordance with its current control flight plan will not be practicable-

- (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 in accordance with paragraph (a), continue to operate in VMC and notify the appropriate ATC unit of the action being taken either to leave the airspace concerned or to land at the nearest suitable aerodrome;
- (c) if operating within a control zone, request authorization to operate as a special VFR; or
- (d) request clearance to operate in instrument flight rules (IFR), if currently rated for IFR operations.

***Operation under IFR in controlled airspace malfunction reports***

56. (1) A pilot in command (PIC) of an aircraft operated in controlled airspace under instrument flight rules (IFR) shall report as soon as practical to air traffic control (ATC) unit any malfunctions of navigational, approach or communication equipment occurring in flight.

(2) In each report specified in sub-regulation (1), the PIC shall include-

- (a) the aircraft identification;
- (b) the equipment affected;

- (c) the degree to which the capability of the pilot to operate under IFR in the air traffic control system is impaired; and
- (d) the nature and extent of assistance desired from ATC unit.

### ***Communications***

57. (1) A person operating an aircraft as a controlled flight shall maintain a continuous air-ground voice communication watch on the appropriate radio frequency of, and establish two-way communication as required, with the appropriate air traffic control unit.

(2) Automatic signalling devices may be used to satisfy the requirement to maintain a continuous listening watch, if authorized by the Authority.

### ***Communication failure: air-to-ground***

58. (1) Where a pilot in command (PIC) has been unable to establish contact with an aeronautical ground station in order to comply with regulation 57 the PIC shall attempt to establish communications with the appropriate air traffic control (ATC) unit using all other available means.

(2) Where an aircraft forms part of the aerodrome traffic at a controlled aerodrome, the PIC shall keep a watch for such instructions as may be issued by visual signals.

(3) Where an aircraft is equipped with secondary surveillance radar (SSR) transponder, the PIC shall select Mode A, Code 7600.

(4) Where a PIC is unable to establish communication in accordance with sub-regulation (1) and is in visual meteorological conditions, the PIC shall-

- (a) continue to fly in visual meteorological conditions, land at the nearest suitable aerodrome and report his or her arrival by the most expeditious means to the appropriate ATC unit;
- (b) if considered advisable, complete an instrument flight rules (IFR) flight in accordance with sub-regulation (5).

(5) If a PIC is unable to establish communication in accordance with sub-regulation (1) and is in instrument meteorological conditions or when the PIC of an IFR flight considers it inadvisable to complete the flight in accordance with sub-regulation (4) (a), the PIC shall-

- (a) in airspace where radar is not used in the provision of ATC, maintain the last assigned speed and level, or minimum flight altitude if higher, for a period of 20 minutes following the failure by the PIC to report the position of the aircraft over a compulsory reporting point and after that adjust level and speed in accordance with the filed flight plan;
- (b) 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-
  - (i) the time the last assigned level or minimum flight altitude is reached; or
  - (ii) the time the transponder is set to Code 7600; or



- (iii) the failure by the PIC to report the position of the aircraft over a compulsory reporting point; whichever is later and after that adjust level and speed in accordance with the filed flight plan;
- (c) when being radar vectored or having been directed by ATC to proceed offset using area navigation (RNAV) without a specified limit, rejoin the current flight plan route no later than the next significant point, taking into consideration the applicable minimum flight altitude;
- (d) 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 paragraph (e), hold over this aid or fix until commencement of descent;
- (e) commence descent from the navigation aid or fix specified in paragraph (d) 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;
- (f) complete a normal instrument approach procedure as specified for the designated navigation aid or fix; and
- (g) land, if possible, within 30 minutes after the estimated time of arrival specified in paragraph (e) or the last acknowledged expected approach time, whichever is later.
- (h) if unable to land as specified in paragraph (g), the PIC shall not approach and land visually and shall leave the vicinity of the aerodrome and any associated controlled airspace at the specified altitude and on the specified route, and if no altitude or route is specified, the PIC shall fly at the last assigned altitude or minimum sector altitude, whichever is the higher, and avoid areas of dense traffic, then he or she shall either-
  - (i) fly to an area in which flight may be continued in visual meteorological conditions and land at a suitable aerodrome there or if this is not possible; or
  - (ii) select a suitable area in which to descend through cloud, fly visually to a suitable aerodrome and land as soon as practicable.

***Communication failure- ground-to air***

59. (1) Where an aeronautical station has been unable to establish contact with a pilot in command (PIC) after calls on the frequencies on which the PIC is believed to be listening, the station shall-

- (a) request other aeronautical stations to render assistance by calling the PIC and relaying traffic information, if necessary;
  - (b) request PICs of other aircraft on the route to attempt to establish communication with the aircraft and relay traffic information, if necessary.
- (2) The provisions of sub-regulation (1) shall also be applied-
- (a) on request of the air traffic services unit concerned;

(b) when an expected communication from a PIC has not been received within a time period such that the occurrence of a communication failure is suspected.

(3) The time period referred to in sub-regulation (2) (b) shall be prescribed by the Authority.

(4) Where the attempts specified in sub-regulation (1) fail, the aeronautical station shall transmit messages addressed to the PIC, other than messages containing air traffic control clearances, by blind transmission on the frequency on which the PIC is believed to be listening.

## UNLAWFUL INTERFERENCE AND INTERCEPTION OF AIRCRAFT

### *Unlawful interference*

60. (1) A pilot in command (PIC) of an aircraft which is being subjected to unlawful interference shall endeavour to notify the appropriate air traffic services (ATS) unit of this fact, any significant circumstances associated with the unlawful interference and any deviation from the current flight plan necessitated by the circumstances, in order to enable the ATS unit to give priority to the aircraft and to minimize conflict with other aircraft.

(2) A PIC shall, when and if possible, operate the secondary surveillance radar (SSR) code 7500 to indicate that the aircraft is being subjected to unlawful interference or SSR code 7700 to indicate that it is threatened by grave and imminent danger and requires immediate assistance.

(3) When an air traffic services unit knows or believes that an aircraft is being subjected to unlawful interference, no reference shall be made in ATS air-ground communications to the nature of the emergency unless it has first been referred to in communications from the aircraft involved and it is certain that such reference will not aggravate the situation.

### *Interception of civil aircraft.*

61. (1) Interception of civil aircraft shall-

- (a) be undertaken only as a last resort;
- (b) if undertaken, 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) not be undertaken for practice of interception of civil aircraft;
- (d) ensure that navigational guidance and related information will be given to an intercepted aircraft by radiotelephony, whenever radio contact can be established; and
- (e) ensure that, in the case where an intercepted civil aircraft is required to land in the territory over flown, the aerodrome designated for the landing is suitable for the safe landing of the aircraft type concerned.

(2) A pilot in command (PIC) of an aircraft, when intercepted shall immediately-

- (a) follow the instructions given by the intercepting aircraft, interpreting and responding to visual signals in accordance with the specifications in regulation 35;

(b) notify, if possible, the appropriate air traffic services unit (ATSU);

(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;

(3) 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.

(4) 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.

(5) In intercepting a civil aircraft, the intercepting aircraft shall take due account of the performance limitations of civil aircraft, the need to avoid flying in such proximity to the intercepted aircraft that a collision hazard may be created and the need to avoid crossing the intercepted aircraft's flight path or to perform any other manoeuvre in such a manner that the wake turbulence may be hazardous, particularly if the intercepted aircraft is a light aircraft.

(6) A pilot of intercepting aircraft equipped with an SSR transponder shall suppress the transmission of pressure-altitude information (in Mode C replies or in the AC field of Mode S replies) within a range of at least 37 km (20 NM) of the aircraft being intercepted in order to prevent the airborne collision avoidance system (ACAS) in the intercepted aircraft from using resolution advisories in respect of the interceptor, while the ACAS traffic advisory information will remain available.

(7) If radio contact is established during interception but communication in a common language is not possible, attempts shall be made to convey instructions, acknowledgement of instructions and essential information by using the phrases and pronunciations in Table 6 and transmitting each phrase twice.

**TABLE 6**  
PHRASES AND PRONUNCIATIONS USED DURING INTERCEPTION

Phrases for use by INTERCEPTING aircraft			Phrases for use by INTERCEPTED aircraft		
Phrase	Pronunciation	Meaning	Phrase	Pronunciation	Meaning
CALL	KOL SA-IN	What is your call sign?	CALL SIGN (call sign)	KOL SA-IN	My call sign is
FOLLOW	FOL-LO	Follow me	WILCO (will comply)	VILL-KO	Understood
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

Phrases for use by INTERCEPTING aircraft			Phrases for use by INTERCEPTED aircraft		
Phrase	Pronunciation	Meaning	Phrase	Pronunciation	Meaning
PROCEED	PRO-SEED	You may proceed	AM LOST	AM LOSST	Position unknown
			MAYDAY	MAYDAY	I am in distress
			HIJACK	HI JACK	I have been hijacked
			LAND (place name)	LAAND (place name)	I request to land at (place name)
			DESCEND	DEE-SEND	I require descent
1. In the second column, syllables emphasized are underlined					
2. The call sign required to be given is that used in radio telephony communications with air traffic services units and corresponding to the aircraft identification in the flight plan					
3. Circumstances may not always permit, nor make desirable, the use of the phrase "HIJACK"					

### ***Reporting of hazardous conditions***

62. A pilot in command shall, on meeting with hazardous conditions in the course of a flight, or as soon as possible after that, send to the appropriate air traffic services unit by the quickest means available information containing the particulars of the hazardous conditions as may be pertinent to the safety of other aircraft.

### ***Altimeter settings***

63. A person operating an aircraft registered in Swaziland shall set the aircraft altimeters to maintain the cruising altitude for flight level reference in accordance with the procedure notified by-

- (a) the State where the aircraft may be; or
- (b) the Aeronautical Information Publication.

### ***Classification of airspace***

64. ATS airspaces classification in Swaziland is shown in the aeronautical information publication (AIP) and classified and designated in accordance with Table 7.

**TABLE 7**  
**CLASSIFICATION OF AIR TRAFFIC**  
**SERVICES AIRSPACES**

Class	Type of flight	Separation provided	Service provided	Speed limitation	Radio communication requirement	Subject to an ATC clearance
A	IFR only	All aircraft	Air traffic control service	N/A	Continuous two way	Yes
B	IFR	All aircraft	Air traffic control service	N/A	Continuous two way	Yes
B	VFR	All aircraft	Air traffic control service	N/A	Continuous two way	Yes
C	IFR	IFR from IFR IFR from VFR	Air traffic control service	N/A	Continuous two way	Yes
C	VFR	VFR form IFR	1) Air traffic control service for Separation from IFR  2) VFR/VFR traffic information (and traffic avoidance advice on request)	250kt IAS below 3050m (10000)ft	Continuous two way	Yes
D	IFR	IFR from IFR	Air traffic control service, traffic  Information about VFR flights (and traffic avoidance advice on request)	250kt IAS below 3050m (10000 ft) AMSL	Continuous two way	Yes
D	VFR	Nil	IFR/VFR and VFR/IFR traffic  Information (and traffic Avoidance advice on request)	250kts IAS below 3050m (10000 ft) AMSL	Continuous two-way	Yes
E	IFR	IFR from IFR	Air traffic control service and as far as practical, traffic  Information about VFR flights	250kt IAS below 3050m (10000 ft)	Continuous two way	Yes
E	VFR	Nil	Traffic information as far as Practical	250 kt IAS below 3050m (10000 ft) AMSL	Continuous two way	No
F	IFR	IFR from IFR	Air traffic advisory service as far as practical  flight information service	Not applicable  IAS below 3050m (10000 ft) AMSL	250kt  Continuous	No two way
F	VFR	Nil	Flight information service	250kt IAS below 3050m (10000 ft) AMSL	No	No
G	Nil		Flight information service	250 kt IAS below 3050m (10000 ft) AMSL	Continuous two way	No

Class	Type of flight	Separation provided	Service provided	Speed limitation	Radio communication requirement	Subject to an ATC clearance
G	Nil	Flight information service	250kt IAS below 3050m (10000 ft)			
			AMLS	No		No
* When the flight of the transition altitude is lower than 3050m (10000 ft) AMSL, FL 100 should be used in lieu of 10000 ft.						

#### ***Authority of PIC of an aircraft***

65. The pilot in command shall have final authority as to the disposition of the aircraft while in command.

#### ***Weather limitations for visual flight rules flights***

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

#### ***Flight in class A airspace***

67. In relation to flights in visual meteorological conditions in class A airspace the pilot in command shall comply with regulations 42 and 48 as if the flights were instrument flight rules flights but shall not elect to continue the flight in compliance with the visual flight rules for the purposes of regulation 42.

#### ***Co-ordination of activities potentially hazardous to civil aircraft***

68. (1) No person shall carry out activities potentially hazardous to aircraft whether flying over Swaziland or over the territorial waters of Swaziland without approval from the Authority.

(2) Notwithstanding the generalities of sub-regulation (1)-

- (a) no person shall intentionally project or cause to be projected a laser beam or other directed high intensity light at an aircraft in such a manner as to create a hazard to aviation safety, damage to the aircraft or injury to its crew or passengers;
- (b) a person using or planning to use lasers or other directed high-intensity lights outdoors in such a manner that the laser beam or other light beam may enter navigable airspace with sufficient power to cause an aviation hazard shall provide written notification to the competent authority;
- (c) a pilot in command (PIC) shall not deliberately operate an aircraft into a laser beam or other directed high-intensity light unless flight safety is ensured; this may require mutual agreement by the operator of the laser emitter or light source, the PIC and the competent authority.

(3) No person shall release into the atmosphere any radioactive material or toxic chemicals which could affect the safety of aircraft operating within the Swaziland airspace.

### PART III VISUAL FLIGHT RULES

#### *Visual meteorological conditions.*

69. Except when operating a special visual flight rules (VFR) flight, a person shall conduct a VFR flight so that the aircraft is flown in conditions of visibility and distance from clouds equal to or greater than those specified in Table 8.

**TABLE 8**  
VISUAL METEOROLOGICAL CONDITIONS VISIBILITY AND  
DISTANCE FROM CLOUD MINIMA

Altitude band	Airspace class	Flight visibility	Distance from cloud
At and above 3050 m (10000 ft) AMSL	A*B C D E F G	8km	1 500m horizontally 300m (1000 ft) vertically
Below 3050m (10000 ft) MSL and above 900m (3 000 ft) AMSL, or above 300m (1000 ft) above terrain, whichever is the higher	*B C D E F G	5km	1500m horizontally 300m (100 ft) vertically
At and below 900m (3000 ft) above terrain, whichever is the higher	A*B C D E	5km	1500m horizontally 300m (1000 ft) vertically
At and below 900m (3000ft) AMSL, or (1000ft) above terrain, whichever is the higher	F G 5km		Clear of cloud and with the surface in sight

\* 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.

#### *Visual flight rules within a control zone*

70. A pilot in command of a visual flight rules flight shall not take off or land at an aerodrome within a control zone, or enter the aerodrome traffic zone or traffic pattern when-

- (a) the ceiling is less than 450 m (1,500 ft); or
- (b) the ground visibility is less than 5 km except when a clearance is obtained from an air traffic control unit.

#### *Minimum safe visual flight rules altitudes*

71. (1) Except when necessary for take-off or landing, or except by permission from the Authority, a visual flight rules (VFR) flight shall not be flown-

- (a) over congested areas of cities, towns or settlements or over an open-air assembly of persons at a height less than 1,000 feet above the highest obstacle within a radius of 600 metres from the aircraft;

- (b) elsewhere than specified in paragraph (a), at a height less than 500 feet above the ground or water.

***Choice of visual flight rules or instrument flight rules***

72. (1) Subject to regulation 67, a person shall fly an aircraft in accordance with visual flight rules (VFR) or instrument flight rules (IFR), if-

- (a) in Swaziland, an aircraft flying at night shall be flown in accordance with the IFR or in a control zone, in accordance with the IFR or the provisions of the proviso to paragraph (b) of regulation 73;
- (b) irrespective of meteorological conditions, the pilot in command shall, when operating within the Nairobi Flight Information Region at or above flight level 150 and within airways irrespective of flight level, fly in accordance with IFR.

(2) Unless authorized by an appropriate air traffic services authority, no person shall operate an aircraft in VFR above flight level 145 or at supersonic or transonic speeds.

***Visual flight rules outside and within controlled airspace***

73. A pilot in command flying an aircraft-

- (a) outside controlled airspace shall remain at least 1,500 m horizontally and 1,000 feet vertically away from cloud and in a flight visibility of at least 8 km and, if below 1,000 feet above ground or water, this sub-regulation shall be deemed to be complied with if the aircraft is flown clear of cloud and in sight of the surface in a flight visibility of not less than 1.5 km;
- (b) within controlled airspace shall remain at least 1,500m horizontally and 1,000 feet vertically away from cloud and in a flight visibility of at least 8 km and if in a control zone, in the case of a special visual flight rules flight, the aircraft shall remain clear of cloud and in sight of the ground or water and shall be flown in accordance with any instructions given by the appropriate air traffic control unit.

***Changing from visual flight rules to instrument flight rules***

74. A pilot in command operating in visual flight rules who wishes to change to instrument flight rules (IFR) shall-

- (a) if a flight plan was submitted, communicate the necessary changes to be effected to the current flight plan; or
- (b) when so required by regulation 33 submit a flight plan to the appropriate air traffic control unit and obtain a clearance prior to proceeding IFR when in controlled airspace.

**PART IV  
INSTRUMENT FLIGHT RULES**

***Aircraft equipment.***

75. A pilot in command shall ensure an aircraft is equipped with suitable instruments and with navigation equipment appropriate to the route to be flown.



**Instrument flight rules flights in controlled airspace**

76. A pilot in command of an aircraft operating an instrument flight rules (IFR) flight in controlled airspace shall-

- (a) be flown at a cruising level, or if authorized to employ cruise climb techniques between two levels or above a level, selected from-
  - (i) Table 9 in areas where, on the basis of regional air navigation agreements and in accordance with conditions specified therein, a vertical separation minimum of 1000 ft is applied between flight level 290 and flight level 410 inclusive;
  - (ii) Table 1 in other areas;
  - (iii) a modified table of cruising levels, when so prescribed in accordance with Table 9 for flight above FL410, except that the correlation of levels to track prescribed therein shall not apply whenever otherwise indicated in air traffic control clearances or specified by the Authority in the Aeronautical Information Publication; and
- (b) comply with the provisions of regulations 46, 47, 48, 50, 51, 52 and 57.

**TABLE 9**  
**TABLES OF CRUISING LEVELS**  
**REDUCED VERTICAL SEPARATION MINIMA AIRSPACE**

a) in areas where, on the basis of regional air navigation agreements and in accordance with conditions specified therein a vertical separation minimum (VSM) of 300 m (1 000ft) is applied between FL 290 and FL 410 inclusive:\*

**TRACK\*\***

From 000 Degrees to 179 Degrees***						From 180 Degrees to 359 Degrees					
IFR Flights			VFR Flights			IFR Flights			VFR Flights		
Altitude			Altitude			Altitude			Altitude		
FL	Meters	Feet	FL	Meters	Feet	FL	Meters	Feet	FL	Meters	Feet FL
10	300	1 000	-	-	-	20	600	2 000	-	-	-
30	900	3 000	35	1 050	3 500	40	1 200	4 000	45	1 350	4 500
50	1 500	5 000	55	1 700	5 500	60	1 850	6 000	65	2 000	6 500
70	2 150	7 000	75	2 300	7 500	80	2 450	8 000	85	2 600	8 500
90	2 750	9 000	95	2 900	9 500	100	3 050	10 000	105	3 200	10 500
110	3 350	11 000	115	3 500	11 500	120	3 650	12 000	125	3 800	12 500
130	3 950	13 000	135	4 100	13 500	140	4 250	14 000	145	4 400	14 500
150	4 550	15 000	155	4 700	15 500	160	4 900	16 000	165	5 050	16 500
170	5 200	17 000	175	5 300	17 500	180	5 500	18 000	185	5 650	18 500
190	5 800	19 000	195	5 950	19 500	200	6 100	20 000	205	6 250	20 500
210	6 400	21 000	215	6 550	21 500	220	6 700	22 000	225	6 850	22 500
230	7 000	23 000	235	7 150	23 500	240	7 300	24 000	245	7 450	24 500
250	7 600	25 000	255	7 750	25 500	260	7 900	26 000	265	8 100	26 500
270	8 250	27 000	275	8 400	27 500	280	8 550	28 000	285	8 700	28 500
290	8 850	29 000				300	9 150	30 000			

310	9 450	31 000	320	9 750	32 000
330	10 050	33 000	340	10 350	34 000
350	10 650	35 000	360	10 550	36 000
370	11 300	37 000	380	11 600	38 000
390	11 900	39 000	400	12 200	40 000
410	12 500	41 000	430	13 100	43 000
430	13 700	45 000	470	14 350	47 000
490	14 950	49 000	510	15 550	51 000
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 (1 000ft) 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.

***Instrument flight rules flights outside controlled airspace.***

77. A pilot in command operating an instrument flight rules flight outside a controlled airspace-

- (a) shall fly at a cruising level selected from Table I, except when otherwise specified by the Authority for flight at or below 1,000 ft above mean sea level;
- (b) but within or into areas or along routes specified in regulation 33 (2) (c) or (d) shall maintain an air-ground voice communication watch on the appropriate communication channel and establish two-way communication, as necessary with air traffic services unit providing flight information services;
- (c) shall report position as specified in regulation 53 for controlled flights.

***Minimum flight altitudes for Instrument flight rules operations.***

78. (1) Except when necessary for take off or landing, an instrument flight rules (IFR) flight shall be flown at a level which is not below the minimum flight altitude established by the Authority of the State whose territory is over flown or where that minimum has not been established-

- (a) for flights over high terrain or in mountainous areas, at a level which is at least 600 m (2,000 ft) above the highest obstacle located within 8km of the estimated position of the aircraft; and

- (b) elsewhere than as specified in subparagraph (i), at a level which is at least 300 m (1,000 ft) above the highest obstacle located within 8 kilometres of the estimated position of the aircraft.

(2) If unable to communicate with air traffic control and there is need to climb to clear an obstacle to determine climb for obstacle clearance, a pilot shall climb to a higher minimum IFR altitude immediately after passing the point beyond which that minimum altitude applies.

***Change from instrument flight rules flight to visual flight rules flight***

79. (1) A pilot electing to change from instrument flight rules (IFR) flight to visual flight rules flight shall notify the appropriate air traffic control unit specifically that the IFR flight is cancelled and then communicate the changes to be made to the pilot's current flight plan.

(2) Where a pilot operating under IFR is flying in or encounters visual meteorological conditions (VMC), the pilot shall not cancel the IFR flight unless it is anticipated and intended, that the flight shall be continued for a reasonable period of time in uninterrupted VMC.

**PART V  
GENERAL**

***Problematic use of psychoactive substances***

80. (1) A person whose function is critical to the safety of aviation (safety-sensitive personnel) shall not undertake that function while under the influence of any psychoactive substance, by reason of which human performance is impaired.

(2) A person referred to in sub-regulation (1) shall not engage in any kind of problematic use of substances.

***Reports of violation.***

81. (1) A person who knows of a violation of the Civil Aviation Authority Act or any rule, regulation or order issued under the Act shall report it to the Authority.

(2) The Authority will determine the nature and type of any additional investigation or enforcement action that need to be taken.

***Enforcement of directions***

82. A person who fails to comply with any direction given to that person by the Authority or by any authorized person under any provision of these Regulations shall be deemed for the purposes of these Regulations to have contravened that provision.

***Extra-territorial application of Regulations***

83. Except where the context otherwise requires, the provisions of these Regulations-

- (a) in so far as they apply, whether by express reference or otherwise, to aircraft registered in Swaziland, shall apply to such aircraft wherever they may be;
- (b) in so far as they apply, whether by express reference or otherwise, to other aircraft, shall apply to such aircraft when they are within Swaziland;

- (c) in so far as they prohibit, require or regulate, whether by express reference or otherwise, the doing of anything by any person in or by any of the crew of, any aircraft registered in Swaziland, shall apply to such persons and crew, wherever they may be; and
- (d) in so far as they prohibit, require or regulate, whether by express reference or otherwise, the doing of anything in relation to any aircraft registered in Swaziland by other persons shall, where the persons are citizens of Swaziland, apply to them wherever they may be.

## PART VI

### OFFENCES AND PENALTIES

#### *Contravention of Regulations*

84. A person who contravenes any provision of these Regulations may have his or her licence, certificate, approval, authorization, exemption or other document revoked or suspended.

#### *Offences and penalties.*

85. (1) If any provision of these Regulations, orders, notices or proclamations made under these Regulations is contravened in relation to an aircraft, the operator of that aircraft and the pilot in command, if the operator or the pilot in command is not the person who contravened that provision shall, without prejudice to the liability of any other person under these Regulations for that contravention, be deemed to have contravened that provision unless the operator or PIC proves that the contravention occurred without their consent or connivance and that all due diligence was exercised to prevent the contravention.

(2) A person who contravenes any provision specified as an "A" provision in the First Schedule commits an offence and is liable on conviction a fine not exceeding fifty thousand Emalangeni for each offence or to imprisonment for a term not exceeding one year or to both.

(3) A person who contravenes any provision specified as a "B" provision in the First Schedule commits an offence and is liable to a fine not exceeding one hundred thousand Emalangeni for each offence or to imprisonment for a term not exceeding three years or to both.

(4) A person who contravenes any provision of these Regulations not being a provision referred to in the First Schedule, commits an offence and is liable to a fine not exceeding one hundred thousand Emalangeni and in the case of a second or subsequent conviction for the like offence to a fine not exceeding four million shillings.

## PART VII

### TRANSITION AND SAVINGS

#### *Transition and savings*

86. A valid licence, certificate, permit or authorization issued or granted by the Authority before the commencement of these Regulations shall remain operational until it expires or is revoked, annulled or replaced.

**SCHEDULE****PENALTIES**

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11	Flights over game parks, game reserves and national parks	A
13	Dropping, spraying, towing and parachute descents	A
14	Proximity to other aircraft	A
16	Right of way-ground rules	A
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24	Anti-collision light	A
25	Simulated instrument flight conditions	A
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28	Aerodromes having air traffic control units	A
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30	Access to and movement in the maneuvering area	A
32	Flight plan	A
36	Closing a flight plan	A
37	Universal aviation signals	A
40	Aircraft interception and interception signals	A

REG. NO	TITLE	PART
42	Signals for aerodrome traffic	A
46	Air traffic control clearances	A
48	Adherence to air traffic control clearances	A
77	IFR flights outside controlled airspace	A
78	Minimum flight altitudes for IFR operations	A
79	Change from IFR flight to VFR flight	A
80	Problematic use of psychoactive substances	B

**N. DLAMINI**  
*MINISTER OF PUBLIC WORKS AND TRANSPORT.*

LEGAL NOTICE NO. 125 OF 2011

CIVIL AVIATION AUTHORITY ACT, 2009  
(Act No. 10 of 2009)

CIVIL AVIATION AUTHORITY (INSTRUMENTS AND EQUIPMENT)  
REGULATIONS, 2011  
(Under Section 104)

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**PRELIMINARY**

In exercise of the powers conferred by section 104 of the Civil Aviation Authority Act, 2009, the Minister of Public Works and Transport makes the following regulations-

***Citation and commencement***

- 1. These regulations may be cited as the Civil Aviation Authority (Instrument and Equipment) Regulations, 2011, and shall come into force on the date of publication in the Gazette.

***Interpretation***

- 2. In these regulations, unless the context otherwise requires, words or expressions used in the Act have the same meaning as in these Regulations, and-

“aerodrome” means a defined area on land or water, including any buildings, installations and equipment used or intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft;

“aeroplane” means 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;

“aircraft” means a machine that derives support in the atmosphere from the reactions of the air, other than the reactions of the air against the earth’s surface;

“air operator certificate (AOC)” means a certificate authorizing an operator to carry out specified commercial air transport operations;

“AOC holder” means an aircraft operator holding an air operator certificate;

“appropriate authority” means-

- (a) in relation to an aircraft, the Authority which is responsible for approval of design and issue of a type certificate;
- (b) in relation to the content of a medical kit, the state of registry;
- (c) in relation to Swaziland, the managing director of the Authority;

“approved standard” means a manufacturing, design, maintenance or quality standard approved by the Authority;

“Authority” means the Civil Aviation Authority established under the Civil Aviation Authority Act;

“calibration” means a set of operations, performed in accordance with a definite documented procedure, that compares the measurement performed by a measurement device or working standard for the purpose of detecting and reporting or eliminating by adjustment errors in the measurement device, working standard or aircraft component tested;

“cargo compartment classifications”-

- (a) class A- one in which a presence of a fire would be easily discovered by a crew member while at his or her station; and each part of the compartment is easily accessible in flight;
- (b) class B-one in which-
  - (i) there is sufficient access in flight to enable a crew member to effectively reach any part of the compartment with the contents of a hand fire extinguisher;
  - (ii) when the access provisions are being used, no hazardous quantity of smoke, flames or extinguishing agent, will enter any compartment occupied by the crew or passengers; and
  - (iii) there is a separate approved smoke detector or fire detector system to give warning at the pilot or flight engineer station;
- (c) class c-one in which-

- (i) there is a separate approved smoke detector or fire detector system to give warning at the pilot or flight engineer station;
  - (ii) there is an approved built-in fire extinguishing or suppression system controllable from the cockpit;
  - (iii) there is means to exclude hazardous quantities of smoke, flames, or extinguishing agent, from any compartment occupied by the crew or passengers; and
  - (iv) there are means to control ventilation and drafts within the compartment so that the extinguishing agent used can control any fire that may start within the compartment;
- (d) class E-one on airplanes used only for the carriage of cargo and in which-
- (i) there is a separate approved smoke or fire detector system to give warning at the pilot or flight engineer station;
  - (ii) there are means to shut off the ventilating airflow to or within, the compartment and the controls for these means are accessible to the flight crew in the crew compartment;
  - (iii) there are means to exclude hazardous quantities of smoke, flames or noxious gases, from the flight crew compartment; and
  - (iv) the required crew emergency exits are accessible under any cargo loading condition;

“category II (CAT II) operations” means a precision instrument approach and landing with a decision height lower than 60m (200) ft), but not lower than 30m (10 ft) and a runway visual range not less than 350m;

“category IIIA (CAT IIIA) operations” means, a precision instrument approach and landing with-

- (a) a decision height lower than 30m (100 ft) or no decision; and
- (b) a runway visual range not less than 200m.

“category IIIB (CAT IIIB) operations” means, a precision instrument approach and landing with-

- (a) a decision height lower than 15m (50 ft) or no decision height; and
- (b) a runway visual range less than 200m but not less than 50m;

“category IIIC (CAT IIIC) operations” means a precision instrument approach and landing with no decision height and no runway visual range limitations;

“class 1 helicopter” means a helicopter with performance such that, in case of critical engine failure, it is able to land on the rejected take-off area or safely continue the flight to an appropriate landing area, depending on when the failure occurs;

“class 2 helicopter” means a helicopter with performance such that, in case of critical engine failure, it is able to safely continue the flight, except when the failure occurs prior to a defined

point after take-off or after a defined point before landing, in which case a forced landing may be required;

“class 3 helicopter” means a helicopter with performance such that, in case of engine failure at any point in the flight profile, a forced landing shall be performed;

“commercial air transport” means an aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire;

“Contracting State” means a State that is signatory to the Convention on International Civil Aviation (Chicago Convention);

“controlled flight” means a flight which is subject to an air traffic control clearance;

“critical engine” means the engine whose failure would most adversely affect the performance or handling qualities of an aircraft;

“flight crew member” means a licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period;

“flight time aeroplanes” means the total time from the moment an aeroplane first moves for the purpose of taking off until the moment it comes to rest at the end of the flight;

“flight time helicopters” means the total time from the moment the helicopter blades start turning until the moment the helicopter finally comes to rest at the end of the flight and the rotor blades are stopped;

“helicopter” means 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 axis;

“inspection” means the examination of an aircraft or aircraft component to establish conformity with a standard approved by the Authority;

“instrument approach” means an approach procedure prescribed by the Authority having jurisdiction over the aerodrome;

“large aeroplane” means an aeroplane having a maximum certificated take-off mass of over 5,700 kg. (12,500 lbs);

“maintenance” means tasks required to ensure the continued airworthiness of an aircraft or aircraft component including any one or combination of overhaul, repair, inspection, replacement, modification and defect rectification;

“master minimum equipment list (M MEL)” means a list established for a particular aircraft type by the organization 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 on the commencement of a flight; the M MEL may be associated with special operating conditions, limitations or procedures and provides the basis for development, review and approval by the Authority of individual operator’s MEL;

“minimum equipment list (MEL)” means a list approved by the Authority which provides for the operation of aircraft, subject to specified conditions, with particular equipment inoperative, prepared by an operator in conformity with, or more restrictive than, the master minimum equipment list established for the aircraft type;

“modification” means a change to the type design of an aircraft or aeronautical product which is not a repair;

“night” means the time between fifteen minutes after sunset and fifteen minutes before sunrise, sunrise and sunset being determined at surface level, and includes any time between sunset and sunrise when an unlighted aircraft or other unlighted prominent object cannot clearly be seen at a distance of 4,572 metres;

“operator” means a person, organization or enterprise engaged in or offering to engage in an aircraft operation;

“operational flight plan” means the plan of the operator 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;

“overhaul” means the restoration of an aircraft or aircraft component using methods, techniques, and practices acceptable to the Authority, including disassembly, cleaning and inspection as permitted, repair as necessary and reassembly; and testing in accordance with approved standards and technical data or in accordance with current standards and technical data acceptable to the Authority, which have been developed and documented by the State of Design, holder of the type certificate, supplemental type certificate or a material, part, process or appliance approval under parts manufacturing approval (PMA) or technical standard order (TSO);

“pressurized aircraft” means an aircraft fitted with means of controlling out flow of cabin air in order to maintain maximum cabin altitude of not more than 10,000 ft so as to enhance breathing and comfort of passengers and crew;

“propeller” means a device for propelling an aircraft that has blades on a powerplant driven shaft and that, when rotated, produces by its action on the air, a thrust approximately perpendicular to its plane of rotation including control components normally supplied by its manufacturer, but does not include main and auxiliary rotors or rotating airfoils of power plants;

“prototype” means an aircraft in respect of which an application has been made for a certificate of airworthiness and the design of which has previously been investigated in connection with any such application;

“rating” means an authorization 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;

“small aeroplane” means an aeroplane of a maximum certificated take-off mass of 5,700kg or less.

## PART II

### GENERAL REQUIREMENTS FOR AIRCRAFT EQUIPMENT AND INSTRUMENTS

#### *General instrument and equipment requirements*

3. (1) No person shall fly an aircraft unless the aircraft is equipped so as to comply with the law of the State of registry.

(2) No person shall fly an aircraft registered in Swaziland unless the aircraft is equipped as specified under these Regulations.

(3) A person may fly an aircraft registered in Swaziland with any additional or special equipment as the Authority may determine.

(4) A person operating an aircraft in Swaziland shall ensure that all the required emergency equipment is installed on board the aircraft, is clearly marked and is stowed or maintained so as not to be a source of danger on the aircraft.

(5) In addition to the minimum equipment necessary for the issue of a certificate of airworthiness, the instruments, equipment and flight documents prescribed in these Regulations shall be installed or carried, as appropriate, in all aircraft according to the aircraft used and to the circumstances under which the flight is to be conducted.

(6) For all aircraft, all required instruments and equipment shall be approved and installed in accordance with the applicable airworthiness requirements.

(7) Prior to operation in Swaziland of any foreign registered aircraft that uses an airworthiness inspection program approved or accepted by the state of registry, the owner or operator shall ensure that instruments and equipment required by these Regulations but not installed in the aircraft are properly installed and inspected in accordance with the requirements of the state of registry.

(8) An air operator certificate (AOC) holder shall ensure that a flight does not commence unless the required equipment-

- (a) meets the minimum performance standard and the operational and airworthiness requirements;
- (b) is installed such that the failure of any single unit required for either communication or navigation purposes or both, shall not result in the inability to communicate or navigate safely on the route being flown; and
- (c) is in operable condition for the kind of operation being conducted, except as provided in the minimum equipment list.

(9) If equipment is to be used by one flight crew member at the station of that crew member during flight, the equipment shall be installed so as to be readily operable from the station.

(10) Where a single item of equipment is required to be operated by more than one flight crew member, the equipment shall be installed so as to be readily operable from any station at which it is required to be operated.

### PART III FLIGHT AND NAVIGATIONAL INSTRUMENTS

#### *General requirements*

4. (1) No person shall fly an aircraft unless the aircraft is equipped with flight and navigational instruments which shall enable the flight crew to-

- (a) control the flight path of the aircraft;
- (b) carry out any required procedural manoeuvres; and
- (c) observe the operating limitations of the aircraft in the expected operating conditions.



(2) Where a means is provided on any aircraft for transferring an instrument from its primary operating system to an alternative system, the means shall include a positive positioning control and shall be marked to indicate clearly which system is being used.

(3) For all aircraft, the instruments that are used by any one flight crew member shall be arranged so as to permit the flight crew member to see the indications readily from the station of that crew member, with the minimum practicable deviation from the position and line of vision which the flight crew member normally assumes when looking forward along the flight path.

### ***Navigation equipment***

5 (1) No person shall operate an aircraft unless the aircraft is equipped with navigation equipment which shall enable it to proceed in accordance with-

- (a) the operational flight plan;
- (b) prescribed required navigational performance types; and
- (c) the requirements of air traffic services.

(2) The requirements of sub-regulation (1) shall not apply where navigation under visual flight rules is accomplished by visual reference to landmarks, if not precluded by the appropriate authority for the route and airspace.

(3) No person shall operate an aircraft unless that aircraft is equipped with sufficient navigation equipment to ensure that, in the event of failure of one item of equipment at any stage of the flight, the remaining equipment shall enable the aircraft to continue navigating in accordance with the requirements.

(4) A radio navigation system fitted in an aircraft shall have an independent antenna installation, except that, where rigidly supported non-wire antenna installations of equivalent reliability are used, only one antenna is required.

### ***Minimum flight and navigational instruments: VFR operations***

6. An operator shall not operate an aircraft by day in accordance with visual flight rules (VFR) unless the aircraft is equipped with the following flight and navigational instruments and associated equipment where applicable-

- (a) a magnetic compass;
- (b) an accurate timepiece showing the time in hours, minutes and seconds;
- (c) a sensitive pressure altimeter calibrated in feet with a sub-scale setting, calibrated in hectopascals or millibars, adjustable for any barometric pressure likely to be set during flight;
- (d) an airspeed indicator calibrated in knots;
- (e) a vertical speed indicator;
- (f) a turn and slip indicator or a turn coordinator incorporating a slip indicator;
- (g) an altitude indicator;

- (h) a stabilised direction indicator;
- (i) a means of indicating in flight crew compartment the outside air temperature calibrated in degrees celsius;
- (j) for flights which do not exceed 60 minutes duration, which take off and land at the same aerodrome and which remain within 50 nautical miles of that aerodrome, the instruments prescribed in sub-paragraphs (f), (g) and (h), and regulation 7 (1) (d), (e) and (f) may all be replaced by either a turn and slip indicator or a turn coordinator incorporating a slip indicator or both an altitude indicator and a slip indicator;
- (k) a secondary surveillance radar (SSR) transponder with mode C for all aircraft except gliders, balloons, airships, kites and aircraft whose original certification does not include an engine powered electrical system and has not been subsequently certified for installation of such a system;
- (l) any additional instruments or equipment that may be prescribed by the Authority.

***Instruments for operations requiring two pilots: VFR***

7. (1) No operator shall operate an aircraft that requires two pilots to operate unless the station of each pilot is equipped with separate instruments as follows-

- (a) a sensitive pressure altimeter calibrated in feet with a sub-scale setting calibrated in hectopascals or millibars, adjustable for any barometric pressure likely to be set during flight;
- (b) an airspeed indicator calibrated in knots;
- (c) a vertical speed indicator;
- (d) a turn and slip indicator or a turn co-coordinator incorporating a slip indicator;
- (e) an altitude indicator; and
- (f) a stabilised direction indicator.

(2) Where two pilots are required to operate an aircraft, an airspeed indicating system shall be equipped with a heated pitot tube or equivalent means for preventing malfunction due to either condensation or icing for-

- (a) aeroplanes with a maximum certificated take-off mass of over 5,700 kg or having a maximum approved passenger seating configuration of more than 9;
- (b) helicopters with a maximum certificated take off mass over 3180 kg or having a maximum approved passenger seating configuration of more than nine.

(3) Where duplicate instruments are required to operate an aircraft, separate displays for each pilot and separate selectors or other associated equipment where appropriate shall be provided.

(4) Where two pilots are required to operate an aircraft, the aircraft-

- (a) shall be equipped with means for indicating when power is not adequately supplied to the required flight instruments; and

- (b) shall be equipped with a mach number indicator at the station of each pilot, with compressibility limitations not otherwise indicated by the required airspeed indicators.

(5) Where two pilots are required to operate an aircraft, an operator shall not conduct visual flight rules operations unless the aeroplane is equipped with a headset with boom microphone or equivalent for each flight crew member on cockpit duty.

***Minimum flight and navigation instruments-IFR operations***

8. (1) No person shall fly an aircraft under instrument flight rules (IFR) unless the aircraft is equipped with-

- (a) a magnetic compass;
- (b) an accurate timepiece showing the time in hours, minutes and seconds;
- (c) two sensitive pressure altimeter calibrated in feet with a sub-scale setting, calibrated in hectopascals or millibars, adjustable for any barometric pressure likely to be set during flight;
- (d) an airspeed indicating system with a means of preventing malfunctioning due to either condensation or icing;
- (e) a turn and slip indicator;
- (f) an altitude indicator (artificial horizon);
- (g) a heading indicator (directional gyroscope);
- (h) a means of indicating whether the supply of power to the gyroscopic instruments is adequate;
- (i) a means of indicating in the flight crew compartment the outside air temperature;
- (j) vertical speed indicator;
- (k) two independent static pressure systems, except that for propeller driven aeroplanes with maximum certificated take off mass of 5,700 kg or less, one static pressure system and one alternate source of static pressure is allowed; and
- (l) an SSR transponder with mode C, except gliders, airships, kites and aircraft whose original certification does not include an engine powered electrical system and has not been subsequently certified for installation of that system.

(2) No person shall operate an aeroplane under IFR unless the aeroplane is equipped with navigation equipment in accordance with the requirements of air traffic services in the areas of operation, but not less than-

- (a) one very high frequency omnidirectional radio range receiving system, automatic directional finder system, one distance measuring equipment, one marker beacon receiving system;
- (b) one instrument landing system (ILS) or microwave landing system (MLS) where ILS or MLS is required for approach navigation purposes;

- (c) an area navigation system when area navigation is required for the route being flown;
- (d) an additional very high frequency omnirange (VOR) receiving system on any route or part of the route, where navigation is based only on VOR signals; and
- (e) an additional automatic directional finder (ADF) system on any route or part of the route, where navigation is based only on non-directional beacon (NDB) signals.

(3) An operator of an aircraft intending to land in instrument meteorological conditions (IMC) at night shall provide the aircraft with radio navigation equipment capable of receiving signals providing guidance to-

- (a) a point from which a visual landing can be effected;
- (b) each aerodrome at which it is intended to land in IMC; and
- (c) any designated alternate aerodromes.

(4) An air operator certificate (AOC) holder shall not conduct single pilot IFR operations unless the aeroplane is equipped with an autopilot with at least altitude hold and heading mode.

(5) An operator of an aircraft shall sufficiently provide the aircraft with navigation equipment to ensure that, in the event of the failure of one item of equipment at any stage of the flight, the remaining equipment will enable the aeroplane to navigate in accordance with these Regulations.

***Additional systems and equipment for single engine turbine powered aeroplanes: night and IMC operations.***

9. A single-engine turbine-powered aeroplane approved by the Authority to operate at night or in instrument meteorological conditions (IMC) 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-

- (a) 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 at night or in IMC;
- (b) a radio altimeter;
- (c) an emergency electrical supply system of sufficient capacity and endurance, following loss of all generated power, to as a minimum-
  - (i) 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;
  - (ii) lower the flaps and landing gear, if applicable;
  - (iii) provide power to one pitot heater, which shall serve an air speed indicator clearly visible to the pilot;
  - (iv) provide for operation of the landing light specified in paragraph (j);
  - (v) provide for one engine restart, if applicable; and

- (vi) provide for the operation of the radio altimeter;
- (d) two altitude indicators, powered from independent sources;
- (e) a means to provide for at least one attempt at engine re-start;
- (f) airborne weather radar;
- (g) a certified area navigation 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;
- (h) for passenger operations, passenger seats and mounts which meet dynamically-tested performance standards and which are fitted with a shoulder harness or a safety belt with a diagonal shoulder strap for each passenger seat;
- (i) in a pressurized aeroplane, 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;
- (j) 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
- (k) an engine fire warning system.

***Instruments for operations requiring two pilots: IFR operations***

10. No operator shall operate an aircraft that requires two pilots to operate unless the station of the second pilot has separate instruments as follows-

- (a) a sensitive pressure altimeter calibrated in feet with a sub-scale setting, calibrated in hectopascals or millibars, adjustable for any barometric pressure likely to be set during flight;
- (b) an airspeed indicating system with a means of preventing malfunctioning due to either condensation or icing;
- (c) a vertical speed indicator;
- (d) a turn and slip indicator or a turn coordinator incorporating a slip indicator;
- (e) an altitude indicator; and
- (f) a stabilised direction indicator.

***Standby altitude indicator***

11. (1) No person shall operate an aeroplane with a maximum certificated take-off mass of over 5,700 kg, or a helicopter of performance class 1 and 2 operated under instrument flight rules unless the aeroplane or helicopter is equipped with a single standby altitude indicator (artificial horizon) that-

- (a) operates independently of any other altitude indicating system;
- (b) is powered continuously during normal operation;

- (c) after a total failure of the normal electrical generating system, is automatically powered for a minimum of 30 minutes from a source independent of the normal electrical generating system; and
  - (d) is appropriately illuminated during all phases of operation.
- (2) Where the standby altitude indicator referred to in sub-regulation (1)-
- (a) is being operated by emergency power, it shall be clearly evident to the flight crew;
  - (b) has its own dedicated power supply, there shall be an associated indication, either on the instrument or on the instrument panel when this supply is in use.

(3) Where the standby altitude instrument system is installed and usable through flight altitudes of 3600 of pitch and roll, the turn and slip indicators may be replaced by slip indicators.

***Instrument and equipment required for Category II operations***

12. (1) No person shall fly an aircraft in a category II operation unless the aircraft is fitted with the following instruments and equipment-

- (a) two localizer and glide slope receiving systems;
- (b) a communications system that does not affect the operation of at least one of the instrument landing system systems;
- (c) a marker beacon receiver that provides distinctive aural and visual indications of the outer and the middle markers;
- (d) two gyroscopic pitch and bank indicating systems;
- (e) two gyroscopic direction indicating systems;
- (f) two airspeed indicators;
- (g) two sensitive altimeters adjustable for barometric pressure, having markings at 20 foot intervals and each having a placarded correction for altimeter scale error and for the wheel height of the aircraft;
- (h) two vertical speed indicators;
- (i) the flight control guidance system may be operated from one of the receiving systems required by paragraph (a) that consists of either-
  - (i) flight director system capable of displaying computed information as steering, command in relation to an instrument landing system localizer and on the same instrument, either computed information as pitch command in relation to an instrument landing system (ILS) glide slope or basic instrument landing system glide slope information;
  - (ii) an automatic approach coupler capable of providing at least automatic steering in relation to an ILS localiser;
- (j) for category II operations with decision heights below 150 feet, either a marker beacon receiver providing aural and visual indications of the inner marker or a radio altimeter;

- (k) warning systems for immediate detection by the pilot of system faults in items specified in paragraphs (a), (d), (e) and (i) and if installed for use in category III operations, the radio altimeter and auto throttle system;
- (l) dual controls;
- (m) an externally vented static pressure system with an alternate static pressure source;
- (n) a windshield wiper or equivalent means of providing adequate cockpit visibility for a safe visual transition by either pilot to touchdown and rollout; and
- (o) a heat source for each airspeed system pitot tube installed or an equivalent means of preventing malfunctioning due to icing of the pitot system.

(2) The instruments and equipment specified in this regulation shall be approved in accordance with the maintenance programme referred under regulation 13 before being used in category II operations.

***Approval and maintenance of instruments and equipment required for Category II operations***

13. (1) No person shall fly an aircraft unless the instruments and equipment required by regulation 11 have been approved as provided in this regulation for use in category II operations.

(2) Before presenting an aircraft for approval of the instruments and equipment, it shall be shown that since the beginning of the 12th calendar month of the date of submission-

- (a) the instrument landing system localizer and glide slope equipment was bench checked according to the instructions of the manufacturer and found to meet the standards specified by the Authority;
- (b) the altimeters and the static pressure systems were tested and inspected and found to meet the requirements of the manufacturers maintenance manual; and
- (c) all other instruments and items of equipment specified in this regulation that are listed in the proposed maintenance program were bench checked and found to meet the maintenance manual of the manufacturer.

(3) All components of the flight control guidance system shall be approved as installed by the evaluation programme specified in this regulation if they have not been approved for category III operations under applicable type or supplemental type certification procedures.

(4) Any subsequent changes to the make, model or design of the components shall be approved by the Authority and related systems or devices, such as the auto throttle and computed missed approach guidance system, shall be approved in the same manner if they are to be used for category II operations.

(5) A radio altimeter shall meet the performance criteria of this sub-regulation for original approval and after each subsequent alteration-

- (a) it shall display to the flight crew clearly and positively the wheel height of the main landing gear above the terrain;
- (b) it shall display wheel height above the terrain to an accuracy of  $\pm 5$  feet or 5 percent, whichever is greater, under the following conditions-

- (i) pitch angles of zero to  $\pm 5$  degrees about the mean approach altitude;
  - (ii) roll angles of zero to 20 degrees in either direction;
  - (iii) forward velocities from minimum approach speed up to 200 knot; and
  - (iv) sink rates from zero to fifteen feet per second at altitudes from one hundred to two hundred feet;
- (c) over level ground, it shall track the actual altitude of the aircraft without significant lag or oscillation;
- (d) with the aircraft at an altitude of two hundred feet or less, any abrupt change in terrain representing no more than 10 percent of the altitude of the aircraft shall not cause the altimeter to unlock and indicator response to such changes shall not exceed 0.1 seconds; if the system unlocks for greater changes, it shall reacquire the signal in less than one second;
- (e) systems that contain a push to test feature shall test the entire system with or without an antenna at a simulated altitude of less than 500 feet; and
- (f) the system shall provide to the flight crew a positive failure warning display any time there is a loss of power or an absence of ground return signals within the designed range of operating altitudes.

(6) All other instruments and items of equipment required by regulation 11 shall be capable of performing as necessary for category II operations and shall be approved by the Authority after each subsequent alteration to these instruments and items of equipment.

(7) Approval by evaluation is requested as a part of the application for approval of the category II manual.

(8) Unless otherwise authorized by the Authority, the evaluation program for each aircraft requires the following demonstrations-

- (a) at least 50 instrument landing system approaches shall be flown with at least five approaches on each of three different instrument landing system facilities and no more than one half of the total approaches on any one instrument landing system facility;
  - (b) all approaches shall be flown under simulated instrument conditions to a 100 foot decision height and 90 percent of the total approaches made shall be successful.
- (9) A successful approach referred to in sub-regulation 8(b) is one in which-
- (a) at the one hundred foot decision height, the indicated airspeed and heading are satisfactory for a normal flare and landing (speed shall be  $\pm 5$  knots of programmed airspeed, but shall not be less than computed threshold speed if auto throttles are used);
  - (b) the aircraft at the 100 foot decision height, is positioned so that the cockpit is within, and tracking so as to remain within, the lateral confines of the extended runway;
  - (c) deviation from glide slope after leaving the outer marker does not exceed 50 percent of full-scale deflection as displayed on the instrument landing system indicator;



- (d) no unusual roughness or excessive altitude changes occur after leaving the middle marker; and
  - (e) in the case of an aircraft equipped with an approach coupler, the aircraft is sufficiently in trim when the approach coupler is disconnected at the decision height to allow for the continuation of a normal approach and landing.
- (10) During the evaluation programme the following information shall be maintained by the applicant for the aircraft with respect to each approach and made available to the Authority upon request-
- (a) each deficiency in airborne instruments and equipment that prevented the initiation of an approach;
  - (b) the reasons for discontinuing an approach, including the altitude above the runway at which it was discontinued;
  - (c) speed control at the 100 foot decision height if auto throttles are used;
  - (d) trim condition of the aircraft upon disconnecting the auto coupler with respect to continuation to flare and landing;
  - (e) position of the aircraft at the middle marker and at the decision height indicated both on a diagram of the basic instrument landing system display and a diagram of the runway extended to the middle marker, with the estimated touchdown point indicated on the runway diagram;
  - (f) compatibility of flight director with the auto coupler, if applicable; and
  - (g) quality of overall system performance.
- (11) A final evaluation of the flight control guidance system is made upon successful completion of the demonstrations; if no hazardous tendencies have been displayed or are otherwise known to exist, the system is approved as installed.
- (12) A bench check required by this regulation and regulation 14 shall-
- (a) be performed by an approved maintenance organization holding one of the following ratings as appropriate to the equipment checked-
    - (i) an instrument rating;
    - (ii) a radio rating; or
    - (iii) computer rating;
  - (b) consist of removal of an instrument or item of equipment and performance of the following-
    - (i) a visual inspection for cleanliness, impending failure, and the need for lubrication, repair or replacement of parts;
    - (ii) correction of items found by that visual inspection; and

- (iii) calibration to at least the specifications of the manufacturer unless otherwise specified in the approved category II manual for the aircraft in which the instrument or item of equipment is installed.

***Maintenance programme for instruments and equipment required for Category II operations***

14. (1) A maintenance program for category II instruments and equipment shall contain the following-

- (a) a list of each instrument and item of equipment specified in regulation 11 that is installed in the aircraft and approved for category II operations, including the make and model of the instruments and items specified in that regulation;
- (b) a schedule that provides for the performance of inspections under paragraph (e) within three months after the date of the previous inspection, subject to the following-
  - (i) the inspection shall be performed by a person authorized by the Civil Aviation Authority (Airworthiness) Regulations, except that each alternate inspection may be replaced by a functional flight check; and
  - (ii) the functional flight check shall be performed by a pilot holding a category II operation pilot authorization for the type aircraft checked;
- (c) a schedule that provides for the performance of bench checks for each listed instrument and item of equipment that is specified in regulation 11 within twelve months after the date of the previous bench check;
- (d) a schedule that provides for the performance of a test and inspection of each static pressure system within twelve months after the date of the previous test and inspection;
- (e) the procedures for the performance of the periodic inspections and functional flight checks to determine the ability of each listed instrument and item of equipment specified in regulation 11 to perform as approved for category II operations, including a procedure for recording functional flight checks;
- (f) a procedure for assuring that the pilot is informed of all defects in listed instruments and items of equipment;
- (g) a procedure for assuring that the condition of each listed instrument and item of equipment upon which maintenance is performed is at least equal to its category II approval condition before it is returned to service for category II operations;
- (h) a procedure for an entry in the maintenance records that shows the date, airport, and reasons for each discontinued category II operation because of a malfunction of a listed instrument or item of equipment.

(2) A bench check required by sub-regulation (1) (c) shall comply with the requirements specified in regulation 13(10).

(3) After the completion of one maintenance cycle of twelve months, a request to extend the period for checks, tests and inspections may be approved if it is shown that the performance of particular equipment justifies the requested extension.

***Navigation equipment for operations in minimal navigation performance specification airspace (MNPS)***

15. (1) An air operator certificate (AOC) holder shall not operate an aeroplane in minimal navigation performance specification airspace unless the aeroplane is equipped with navigation equipment that-

- (a) continuously provides indications to the flight crew of adherence to or departure from track to the required degree of accuracy at any point along that track; and
- (b) has been authorized by the state of registry for minimal navigation performance specification operations concerned.

(2) The equipment referred to in sub-regulation (1) shall comply with the minimal navigation performance specification prescribed in ICAO Doc 7030 Regional Supplementary Procedures.

(3) The navigation equipment required for air operator certificate (AOC) holder operations in minimal navigation performance specification airspace shall be visible and usable by either pilot seated at his or her duty station.

(4) For unrestricted operation in minimal navigation performance specification airspace, an aeroplane operated by an AOC holder shall be equipped with two independent long-range navigational systems.

(5) For operation in minimal navigation performance specification airspace along notified special routes, an aeroplane operated by an AOC holder shall be equipped with one long range navigational systems, unless otherwise specified.

***Equipment for operations in reduced vertical separation minimum airspace (RVSM)***

16. (1) No person shall operate an aeroplane in reduced vertical separation minimum airspace unless the aeroplane is provided with equipment which is capable of-

- (a) indicating to the flight crew the flight level being flown;
- (b) automatically maintaining a selected flight level;
- (c) providing an alert to the flight crew when a deviation occurs from the selected flight level, with the threshold for the alert not exceeding 90m (300 ft); and
- (d) automatically reporting pressure-altitude.

(2) The equipment referred to in sub-regulation (1) shall comply with minimum requirements prescribed in ICAO Doc 9574 Manual for the Implementation of a 300m (1000ft) Vertical Separation Minimum Between flight level 290 and flight level 410 inclusive.

**PART IV**  
**COMMUNICATION EQUIPMENT**

***Radio equipment***

17. (1) No person shall operate an aircraft unless the aircraft is equipped with radio equipment

- (a) that complies with the law of the state of registry;

(b) required for the kind of operation being conducted; and

(c) capable of receiving meteorological information at any time during the flight.

(2) In any particular case, the Authority may direct that an aircraft registered in Swaziland shall carry any additional or special radio equipment as specified by the Authority for the purpose of facilitating the navigation of the aircraft, the carrying out of search and rescue operations or the survival of the persons carried on the aircraft.

(3) An aircraft operated under visual flight rules (VFR) or instrument flight rules (IFR) shall be equipped with radio communication equipment capable of conducting two-way communication with those aeronautical stations and on the frequencies prescribed by the Authority, including the aeronautical emergency frequency 121.5 MHz; this requirement is considered fulfilled if the ability to conduct the communications specified is established during radio propagation conditions which are normal for the route.

(4) No person shall operate an aircraft under IFR or VFR over routes that cannot be navigated by reference to visual landmarks, unless the aeroplane is equipped with communication and navigation equipment in accordance with the requirements of air traffic services in the area of operation, but not less than two independent radio communication systems necessary under normal operating conditions to communicate with an appropriate ground station from any point on the route including diversions.

(5) A radio system referred to in sub-regulation (4) shall have an independent antenna installation except that where rigidly supported non-wire antennae or other antennae installations of equivalent reliability are used, only one antenna is required.

(6) Where an air operator certificate (AOC) holder is required to use more than one communications equipment unit, each unit shall be independent of the other or others to the extent that a failure in any one shall not result in failure of any other.

(7) No person shall operate an aircraft under IFR unless the aircraft is equipped with an audio selector panel accessible to each required flight crew member.

(8) An AOC holder shall not conduct single pilot IFR or night operations unless the aircraft is equipped with a headset with boom microphone or equivalent and a transmit button on the control wheel.

(9) An aircraft when flying under IFR while making an approach to landing shall be equipped with a radio apparatus capable of receiving signals from one or more aeronautical radio stations on the surface, to enable the aircraft to be guided to a point from which a visual landing can be made at the aerodrome at which the aircraft is to land.

(10) Subject to exceptions that may be prescribed, the radio equipment provided in compliance with this regulation in any aircraft registered in Swaziland shall be maintained in a serviceable condition.

(11) Radio equipment installed in any aircraft registered in Swaziland, in addition to the equipment required under these Regulations, shall be of a type approved by the Authority in relation to the purpose for which it is to be used, and shall be installed in a manner approved by the Authority and licensed by the authority responsible for communication; and neither the equipment nor the manner in which it is installed shall be modified except with the approval of the Authority.

(12) No person shall operate an aircraft unless there is a boom or throat microphone available at each required flight crew member flight duty station.

***Airborne collision avoidance system***

18. No person shall fly a turbine-engined aeroplane of a maximum certificated take-off-mass of over 5,700 kg or authorized to carry more than 19 passengers unless the aeroplane is equipped with an airborne collision avoidance system (ACAS II).

***Altitude reporting transponder***

19. (1) No person shall operate an aeroplane or helicopter in airspace that requires a pressure-altitude reporting transponder unless that equipment is operative.

(2) No person shall operate an aeroplane in reduced vertical separation minima (RVSM) airspace unless the aeroplane is equipped with a system that is automatically reporting pressure altitudes.

(3) No person shall operate an aeroplane or helicopter in commercial air transport unless the aeroplane or helicopter is equipped with a pressure-altitude reporting transponder that operates in accordance with the air traffic control requirements.

***Crew member interphone system: aeroplane***

20. (1) An air operator certificate (AOC) holder shall not operate an aeroplane on which a flight crew of more than one is required unless the aeroplane is equipped with a flight crew interphone system, including headsets and microphones, not of a handheld type, for use by all members of the flight crew.

(2) An AOC holder shall not operate an aeroplane with a maximum certified take-off mass exceeding 15,000 kilogrammes or having a maximum approved passenger seating configuration of more than 19 unless the aeroplane is equipped with a crew member interphone system.

(3) A crew member interphone system shall meet the following-

- (a) operates independently of the public address system except for handsets, headsets, microphones, selector switches and signalling devices;
- (b) provides a means of two-way communication between the flight crew compartment and each-
  - (i) passenger compartment;
  - (ii) galley located other than on a passenger deck level; and
  - (iii) remote crew compartment that is not on the passenger deck and is not easily accessible from a passenger compartment;
- (c) is readily accessible for use-
  - (i) from each of the required flight crew stations in the flight crew compartment; and
  - (ii) at required cabin crew member stations close to each separate or pair of floor level emergency exits;

- (d) has an alerting system incorporating aural or visual signals for use by flight crew members to alert the cabin crew and for use by cabin crew members to alert the flight crew;
- (e) has a means for the recipient of a call to determine whether it is a normal call or an emergency call; and
- (f) provides on the ground a means of two-way communication between ground personnel and at least two flight crew members.

***Crew member interphone system: helicopter***

21. An air operator certificate (AOC) holder shall not operate a helicopter carrying a crew member other than a flight crew member unless the helicopter is equipped with a crew member interphone system which-

- (a) operates independently of the public address system except for handsets, headsets, microphones, selector switches and signalling devices;
- (b) provides a means of two-way communication between the flight crew compartment and each crew member station;
- (c) is readily accessible for use from each of the required flight crew stations in the flight crew compartment;
- (d) is readily accessible for use at required cabin crew stations close to each separate or pair of floor level emergency exits;
- (e) has an alerting system incorporating aural or visual signals for use by flight crew members to alert the flight crew; and
- (f) has a means for the recipient of a call to determine whether it is a normal call or an emergency call.

**PART V**  
**INSTRUMENTS AND EQUIPMENT**

***Aircraft lights and instrument illumination***

22. (1) No person shall operate an aircraft unless the aircraft is equipped with-

- (a) for flight by day-
  - (i) anti-collision light system;
  - (ii) lighting supplied from the aircraft electrical system to provide adequate illumination for all instruments and equipment essential for the safe operation of the aircraft;
  - (iii) lighting supplied from the aircraft electrical system to provide adequate illumination in all passenger compartments; and
  - (iv) an electric torch for each required crew member readily accessible to crew member when seated at their designated station;

- (b) for flight by night, in addition to the equipment specified in regulation 8-
  - (i) the lights required by the Civil Aviation Authority (Rules of the Air and Air Traffic Control) Regulations for aircraft in flight or operating on the movement area of an aerodrome;
  - (ii) lighting supplied from the aircraft electrical system to provide adequate illumination for all instruments and equipment essential for the safe operation of the aircraft;
  - (iii) lights in all passenger compartments;
  - (iv) an electric torch for each crew member station; and
  - (v) two landing lights or a single light having two separately energized filaments.

### ***Engine instruments***

23. (1) No person shall conduct any commercial air transport operations in any aircraft without the following engine instruments, where applicable-

- (a) a fuel pressure indicator for each engine;
- (b) a fuel flow meter;
- (c) a means for indicating fuel quantity in each fuel tank to be used;
- (d) an oil pressure indicator for each engine;
- (e) an oil quantity indicator for each oil-tank when a transfer or separate oil reserve supply is used;
- (f) an oil-in temperature indicator for each engine;
- (g) a tachometer for each engine; and
- (h) an independent fuel pressure warning device for each engine or a master warning device for all engines with a means for isolating the individual warning circuits from the master warning device.

(2) In addition to the equipment listed in sub-regulation (1), a reciprocating engine aircraft shall have the following-

- (a) a carburettor air temperature indicator for each engine;
- (b) a cylinder head temperature indicator for each air-cooled engine;
- (c) a manifold pressure indicator for each engine;
- (d) a device for each reversible propeller, to indicate to the pilot when the propeller is in reverse pitch that complies with the following-
  - (i) the device may be actuated at any point in the reversing cycle between the normal low pitch stop position and full reverse pitch, but it shall not give an indication at or above the normal low pitch position; and

- (ii) the source of indication shall be actuated by the propeller blade angle or be directly responsive to it.

(3) In addition to the equipment listed in sub-regulation (1), an AOC holder operating turbine engine aircraft shall have the following-

- (a) a gas temperature indicator for each engine;
- (b) an indication of engine thrust or gas stream pressure that can be related to thrust for each turbojet engine;
- (c) a torque indicator for each turbo propeller engine;
- (d) a blade position indicating means for each turbo-propeller engine propeller to provide an indication to the flight crew when the propeller blade angle is below the flight low pitch position;
- (e) a position indicator to the flight crew to indicate thrust reverse position; and
- (f) an indicator to indicate the functioning of the powerplant ice protection system.

#### WARNING INSTRUMENTS AND SYSTEMS

##### *Machmeter and speed warning devices*

24. (1) No person shall operate an aeroplane with compressibility limitations not otherwise indicated by the required airspeed indicator unless the aeroplane is equipped with a mach meter at each pilot station.

(2) No person shall operate an aeroplane requiring a speed warning device unless the device installed is capable of giving effective aural warnings differing distinctively from aural warnings used for other purposes, whenever the speeds exceeds VMO plus 6 knots or MMO + 0.01.

##### *Loss of pressurisation device*

25. A operator shall not operate a pressurized aircraft intended to be operated at flight altitudes at which the atmospheric pressure is less than 376hPa unless the aircraft is equipped with a device to provide positive warning to the flight crew of any dangerous loss of pressurization.

##### *Landing gear: aural warning device*

26. (1) No person shall operate an aeroplane equipped with a retractable landing gear unless the aeroplane has landing gear aural warning device that functions continuously under the following conditions-

- (a) for aeroplanes with an established approach wing-flap position, whenever the wing flaps are extended beyond the maximum certified approach or climb configuration position in the aeroplane flight manual and the landing gear is not fully extended and locked; and
- (b) for aeroplanes without an established approach climb wing flap position, whenever the wing flaps are extended beyond the position at which landing gear extension is normally performed and the landing gear is not fully extended and locked.



(2) The warning system required under sub-regulation (1)-

- (a) shall not have a manual shut off;
- (b) shall be in addition to the throttle-actuated device installed under the type certification airworthiness requirements; and
- (c) may utilise any part of the throttle-actuated system including the aural warning device.

(3) The flap position-sensing unit required under sub-regulation (1) may be installed at any suitable place in the aeroplane.

### ***Altitude alerting system***

27. No person shall operate a turbojet-powered aeroplane unless that aeroplane is equipped with an approved altitude alerting system or device that is in operable condition and meets the requirements of sub-regulation (2).

(2) An altitude alerting system or device required under sub-regulation (1) shall be able to-

- (a) alert the flight crew upon approaching a pre-selected altitude in either ascent or descent, by a sequence of-
  - (i) both aural and visual signals in sufficient time to establish level flight at that pre-selected altitude; or
  - (ii) visual signals in sufficient time to establish level flight at that pre-selected altitude, and when deviating above and below that pre-selected altitude, by an aural signal;
- (b) provide the required signals from sea level to the highest operating altitude approved for the aeroplane in which it is installed;
- (c) pre-select altitudes in increments that is commensurate with the altitudes at which the aircraft is operated;
- (d) be tested without special equipment to determine proper operation of the alerting signals; and
- (e) accept necessary barometric pressure settings if the system or device operates on barometric pressure; however, for operation below 3,000 feet above ground level, the system or device need only provide one signal, either visual or aural, to comply with this paragraph; a radio altimeter may be included to provide the signal if the operator has an approved procedure for its use to determine decision height or minimum deviation altitude, as appropriate.

(3) An operator to which this regulation applies shall establish and assign procedures for the use of the altitude alerting system or device and each flight crew shall comply with the procedures assigned to each member.

### ***Ground proximity warning system***

28. (1) No person shall fly a turbine-engined aeroplane of a maximum certificated take-off mass of over 5,700 kg or authorized to carry more than 9 passengers unless the aeroplane is equipped with a ground proximity warning system.

(2) A turbine-engined aeroplane of a maximum certificated take-off mass of over 15,000 kg or authorized to carry more than 30 passengers shall be equipped with a ground proximity warning system which has a forward looking terrain avoidance function.

(3) A turbine-engined aeroplane of a maximum certificated take-off mass of over 5,700 kg or authorized to carry more than 9 passengers, for which the individual certificate of airworthiness is first issued on or after 1 January 2004, shall be equipped with a ground proximity warning system which has a forward looking terrain avoidance function.

(4) All turbine-engined aeroplanes of over 5,700 kg maximum certificated take-off mass of over 5,700 kg or authorized to carry more than 9 passengers, shall be equipped with a ground proximity warning system which has a forward looking terrain avoidance function.

(5) All piston-engined aeroplanes of a maximum certificated take-off mass of over 5,700 kg or authorized to carry more than 9 passengers shall be equipped with a ground proximity warning system which provides the warnings in sub-regulation (7) (a) and (c), warning of unsafe terrain clearance and a forward looking terrain avoidance function.

(6) A ground proximity warning system shall provide automatically a timely and distinctive warning to the flight crew when the aeroplane is in potentially hazardous proximity to the surface of the earth.

(7) A ground proximity warning system shall provide, unless otherwise specified in these Regulations, the following circumstances-

- (a) excessive descent rate;
- (b) excessive terrain closure rate;
- (c) excessive altitude loss after take-off or go-around;
- (d) unsafe terrain clearance while not in landing configuration-
  - (i) gear not locked down;
  - (ii) flaps not in a landing position; and
- (e) excessive descent below the instrument glide path.

#### ***Weather radar***

29. (1) An air operator certificate (AOC) holder shall not operate-

- (a) a pressurized aircraft; or
- (b) an unpressurized aircraft which has a maximum certificated take-off mass of over 5,700 kg; or
- (c) an unpressurized aircraft having a maximum approved passenger seating configuration of more than 9 seats, unless such aircraft is equipped with airborne weather radar equipment whenever such an aircraft is being operated at night or in instrument meteorological conditions in areas where thunderstorms or other potentially hazardous weather conditions, regarded as detectable with airborne weather radar, may be expected to exist along the route.

(2) The airborne weather radar equipment in propeller driven pressurized aeroplanes having a maximum certificated take-off mass of over 5,700 kg with a maximum approved passenger seating configuration not exceeding 9 seats, operated by an AOC holder at night and in instrument meteorological conditions referred to in sub-regulation (1) may be replaced by other equipment capable of detecting thunderstorms and other potentially hazardous weather conditions, regarded as detectable with airborne weather radar equipment, subject to approval by the Authority.

## **PART VI**

### **FLIGHT DATA RECORDER AND COCKPIT VOICE RECORDER**

#### ***Cockpit voice recorders: aeroplane***

30. (1) An air operator certificate (AOC) holder shall not operate an aeroplane of a maximum certificated take-off mass of over 5,700 kg unless the aeroplane is equipped with a cockpit voice recorder, to record the aural environment on the flight deck during flight time.

(2) A turbine-engined aeroplane of a maximum certificated take-off mass of 27,000 kg or above that is of a type of which the prototype was certificated by the appropriate Authority before 30th September 1969 or the individual certificate of airworthiness was issued before 1st January, 1987 shall be equipped with a cockpit voice recorder, the objective of which is the recording of the aural environment on the flight deck during flight time.

#### ***Cockpit voice recorders: duration - aeroplane***

31. (1) No person shall fly an aeroplane unless the aeroplane is equipped with a cockpit voice recorder installed as required under regulation 29, capable of retaining the information recorded during at least the last thirty minutes of its operation.

(2) A cockpit voice recorder installed in an aeroplane of a maximum certificated take-off mass of over 5,700 kg for which the individual certificate of airworthiness is first issued after 1 January 2003, shall be capable of retaining the information recorded during at least the last two hours of its operation.

#### ***Cockpit voice recorders: general requirements – aeroplane***

32. (1) No person shall fly an aeroplane unless the aeroplane is equipped with a cockpit voice recorder installed as required under regulation 29, designed to record at least the following-

- (a) voice communication transmitted from or received in the aeroplane by radio;
- (b) aural environment on the flight deck;
- (c) voice communication of flight crew members on the flight deck using the interphone system of the aeroplane;
- (d) voice or audio signals identifying navigation or approach aids introduced in the headset or speaker;
- (e) voice communication of flight crew members using the passenger address system, if installed; and
- (f) digital communications with air traffic services (ATS), unless recorded by the flight data recorder.

(2) A cockpit voice recorder container shall-

- (a) be painted a distinctive orange or yellow colour;
- (b) carry reflective material to facilitate its location; and
- (c) have securely attached an automatically activated underwater locating device.

(3) To aid in voice and sound discrimination, microphones in the cockpit shall be located in the best position for recording voice communications originating at the pilot and co-pilot stations and voice communications of other crew members on the flight deck when directed to those stations by wiring suitable boom microphones to record continuously on separate channels.

(4) A cockpit voice recorder shall be installed so that-

- (a) the probability of damage to the recording is minimized by-
  - (i) locating the recorder as far as practicable, and
  - (ii) in the case of pressurized aeroplanes, locating the cockpit voice recorder in the vicinity of the rear pressure bulkhead;
- (b) it receives its electrical power from a bus that provides the maximum reliability for the operation of the cockpit voice recorder without jeopardizing service to essential or emergency loads;
- (c) there is an aural or visual means for pre-flight checking of the cockpit voice recorder for proper operation; and
- (d) if the cockpit voice recorder has a bulk erasure device, the installation is designed to prevent operation of the device during flight time or crash impact.

#### ***Cockpit voice recorders: helicopters***

33. (1) Subject to sub-regulation (2), no person shall not fly a helicopter for which the individual certificate of airworthiness was first issued before, on or as the case may be, after 1 January 1987 of a maximum certificated take-off mass of 3,180 kg or above unless the helicopter is equipped with a cockpit voice recorder (CVR) the objective of which is the recording of the aural environment on the flight deck during flight time.

(2) Where the helicopter is not equipped with a flight data recorder (FDR) the main rotor speed shall be recorded on one track of the CVR.

#### ***Cockpit voice recorders: duration -helicopters***

34. (1) Except as provided in sub-regulation (2), no person shall fly a helicopter unless the helicopter is equipped with a cockpit voice recorder (CVR) capable of retaining the information recorded during at least the last 30 minutes of its operation.

(2) A CVR installed in a helicopter for which the individual certificate of airworthiness is first issued after 1 January 2003 shall be capable of retaining the information recorded during at least the last two hours of its operation.

#### ***Cockpit voice recorders: performance requirements***

35. (1) No person shall fly a helicopter unless the helicopter is equipped with a cockpit voice recorder installed as required by regulation 29, capable of recording on at least four tracks simultaneously-

- (a) to ensure accurate time correlation between tracks, the cockpit voice recorder shall record in an in-line format;
- (b) if a bi-directional configuration is used, the in-line format and track allocation shall be retained in both directions.
- (2) The track allocation in a cockpit voice recorder shall be-
  - (a) track 1 - co-pilot headphones and live boom microphone;
  - (b) track 2 - pilot in command headphones and live boom microphone;
  - (c) track 3 - area microphones; and
  - (d) track 4 - time reference plus the headphone and live microphone of the third and fourth crew members, if applicable.

(3) The cockpit voice recorder shall, when tested by methods approved by the appropriate authority, be demonstrated to be suitable for the environmental extremes, which it is designed to operate.

(4) Where a cockpit voice recorder is installed in an aircraft, means shall be provided for an accurate correlation between the cockpit voice recorder and the flight data recorder.

***Cockpit voice recorders: inspections***

36. (1) Prior to the first flight of the day, the built-in test features on the cockpit for the cockpit voice recorder, when installed, shall be monitored.

- (2) Annual inspections of a cockpit voice recorder shall be conducted as follows-
  - (a) the read-out of the recorded data shall ensure that the recorder operates correctly for the nominal duration of the recording;
  - (b) an annual examination of the recorded signal on the cockpit voice recorder shall be carried out by replay of the cockpit voice recorder recording;
  - (c) while installed in the aircraft, the cockpit voice recorder shall record text signals from each aircraft source and from relevant external sources to ensure that all required signals meet intelligibility standards; and
  - (d) during the annual examination, a sample of in-flight recordings of the cockpit voice recorders shall be examined for evidence that the intelligibility of the signal is acceptable.

(3) A report of the annual inspection referred to in sub-regulation (2) shall be made available to the Authority.

***Flight data recorders***

37. (1) No person shall operate a turbine-engine aircraft of a maximum certificated take off mass of over 5,700 kg unless the aircraft is equipped with an approved flight data recording system.

- (2) The flight recorders referred to in sub-regulation (1) shall-

- (a) be constructed, located and installed so as to provide maximum practical protection for the recordings in order that the recorded information may be preserved, recovered and transcribed;
- (b) be calibrated and maintained in accordance with a maintenance schedule approved by the Authority, with a valid certificate of release to service issued in accordance with these Regulations certifying that maintenance has been carried out in accordance with such maintenance schedule; and
- (c) have an approved device to assist in locating that recorder under water.

(3) An aeroplane for which the individual certificate of airworthiness is first issued after 1 January 2005, which utilizes data link communications and is required to carry a cockpit voice recorder shall record on a flight recorder, all data link communications to and from the aeroplane; the minimum recording duration shall be equal to the duration of the cockpit voice recorder and shall be correlated to the recorded cockpit audio.

(4) With effect from 1 January 2007, an aeroplane, which utilizes data link communications and is required to carry a cockpit voice recorder shall record on a flight recorder, all data link communications to and from the aeroplane; the minimum recording duration shall be equal to the duration of the cockpit voice recorder, and shall be correlated to the recorded cockpit audio.

(5) Inspections of flight data records shall be conducted annually and a report of the annual inspection shall be made available to the Authority.

(6) The use of engraving metal foil flight data recorders or photographic film flight data recorders is prohibited.

#### ***Flight data recorders: aeroplanes***

38. (1) No person shall fly an aeroplane for which the individual certificate of airworthiness was first issued on or after 1 January 1989-

- (a) of a maximum certificated take off mass of over 27,000 kg unless it is equipped with a type I flight data recorder; and
- (b) of a maximum certificated take-off mass of over 5,700 kg, up to and including 27 000 kg, unless the aeroplane is equipped with a type II flight data recorder (FDR).

(2) No person shall fly a turbine-engined aeroplane for which the individual certificate of airworthiness was first issued on or after 1 January 1987 but before 1 January 1989 being of a maximum certificated take-off mass of-

- (a) over 5,700 kg except those referred to in paragraph (b), unless the aeroplane is equipped with a FDR which shall record time, altitude, airspeed, normal acceleration and heading; and
- (b) over 27,000 kg of the types of which the prototype was certificated by the appropriate national authority after 30 September 1969, unless the aeroplane is equipped with a type II FDR.

(3) No person shall fly a turbine-engined aeroplane for which the individual certificate of airworthiness was first issued before 1 January 1987, being of a maximum certificated take-off mass of over 5,700 kg, unless the aeroplane is equipped with a FDR which shall record time, altitude, airspeed, normal acceleration and heading.

(4) No person shall fly an aeroplane for which the individual certificate of airworthiness is first issued after 1 January 2005 of a maximum certificated take-off mass of over 5 700 kg unless it is equipped with a Type IA FDR.

(5) No person shall fly a multi-engined turbine powered aeroplane of a maximum certificated take-off mass of 5,700 kg or less for which the individual certificate of airworthiness is first issued on or after 1st January 1990, unless it is equipped with a type IIA FDR

#### ***Flight data recorders: helicopters***

39. No person shall fly a helicopter of a maximum certificated take-off mass of over-

- (a) 7,000 kg for which the individual certificate of airworthiness is first issued on or after 1 January 1989, unless the helicopter is equipped with a type IV flight data recorder (FDR); and
- (b) 3,180 kg for which the individual certificate of airworthiness is first issued after 1 January 2005, unless the helicopter is equipped with a Type IVA FDR with a recording duration of at least 10 hours.

#### ***Flight data recorder duration***

40. No person shall fly an aircraft unless the aircraft is equipped with a flight data recorder capable of retaining the information recorded during at least the last twenty-five hours of the operation, except for the type IIA flight data recorders which shall be capable of retaining the information recorded during at least the last thirty minutes of its operation.

#### ***Flight data recorder: information recorded***

41. No person shall fly an aircraft unless the aircraft is equipped with a flight data recorder specified in regulations 36 and 37 shall record the information specified in the Table set out in the First Schedule.

#### ***Recording of data link communication***

42. (1) No person shall fly an aeroplane that uses data link communications and is required to carry a cockpit voice recorder (CVR), unless it is capable to record on a flight recorder all data link communications to and from the aeroplane.

(2) This requirement in sub- regulation (1) is effective-

- (a) 1 January 2005, in all aeroplanes for which the individual certificate of airworthiness is issued after this date;
- (b) 1 January 2007, in all aeroplanes that use data link communications and are required to carry a CVR.

(3) The minimum recording duration shall be equal to the duration of the CVR and shall be correlated to the recorded cockpit audio.

(4) The recording shall contain sufficient information to derive the content of the data link communications message and, whenever practical, the time the message was displayed to or generated by the crew shall be recorded.

(5) An aeroplane is required to be equipped with a FDR and a CVR may alternatively be equipped with the following number of combination (FDR/CVR) recorders-

- (a) two - for all aeroplanes of a certificated takeoff mass of over 5 700kg; and
- (b) one - for all multi-engined turbine powered aeroplanes of 5 700kg or less.

**PART VII**  
**EMERGENCY, RESCUE AND SURVIVAL EQUIPMENT**

***Emergency equipment: all aircraft***

43. (1) No person shall operate an aircraft unless that aircraft is equipped with emergency and flotation equipment that is-

- (a) readily accessible to the crew and with regard to equipment located in the passenger compartment, to passengers without appreciable time for preparatory procedures;
- (b) clearly identified and clearly marked to indicate the method of operation of the aircraft;
- (c) marked to indicate the date of last inspection; and
- (d) when carried in a compartment or container, marked to indicate the contents and the compartment or container or the item itself.

(2) An item of emergency and flotation equipment referred to in sub-regulation (1) shall be inspected regularly in accordance with inspection periods approved by the Authority.

***Means for emergency evacuation***

44. (1) An air operator certificate holder shall not operate an aeroplane with passenger emergency exit sill heights-

- (a) which are more than 1.83 metres (6 feet) above the ground with the aeroplane on the ground and the landing gear extended; or
- (b) which would be more than 1.83 metres (6 feet) above the ground after the collapse of or failure to extend of, one or more legs of the landing gear and for which a type certificate was first applied for on or after 1 April 2000, unless the aeroplane has equipment or devices available at each exit, where sub-regulations (1) or (2) apply, to enable passengers and crew to reach the ground safely in an emergency.

(2) The equipment or device referred to in sub-regulation (1) need not be provided at over wing exits if the designated place on the aeroplane structure at which the escape route terminates is less than 1.83 metres (6 feet) from the ground with the aeroplane on the ground, the landing gear extended and the flaps in the take off or landing position whichever flap position is higher from the ground.

(3) An aeroplane required to have a separate emergency exit for the flight crew and for which-

- (a) the lowest point of the emergency exit is more than 1.83 metres (6 feet) above the ground with the landing gear extended; or
- (b) a type certificate was first applied for on or after 1 April 2000, would be more than 1.83 metres (6 feet) above the ground after the collapse of or failure to extend of, one or more legs of the landing gear, shall have a device to assist all members of the flight crew in descending to reach the ground safely in an emergency.



***Emergency lighting***

45. (1) No person shall operate a passenger carrying aeroplane of a maximum approved passenger seating configuration of more than 9 unless the aeroplane is provided with an emergency lighting system having an independent power supply to facilitate the evacuation of the aeroplane.

(2) The emergency lighting system must include-

- (a) for aeroplanes which have a maximum approved passenger seating configuration of more than 19-
  - (i) sources of general cabin illumination;
  - (ii) internal lighting in floor level emergency exit areas;
  - (iii) illuminated emergency exit marking and locating signs;
  - (iv) for aeroplanes for which the application for the type certificate or equivalent was filed in an appropriate authority and when flying by night, exterior emergency lighting at all over wing exits, passenger emergency exits and at exits where descent assist means are required; and
  - (v) for aeroplanes for which the type certificate was first issued by an appropriate authority on or after 1st January 1958, floor proximity emergency escape path marking system in the passenger compartment;
- (b) for aeroplanes which have a maximum approved passenger seating configuration of 19 or less-
  - (i) sources of general cabin illumination;
  - (ii) internal lighting in emergency exit areas; and
  - (iii) illuminated emergency exit marking and locating signs.
- (c) After 1 April 1998, an operator shall not, by night, operate a passenger carrying aeroplane which has a maximum approved passenger seating configuration of 9 or less unless the aeroplane is provided with a source of general cabin illumination to facilitate the evacuation of the aeroplane; the system may use dome lights or other sources of illumination already fitted on the aeroplane and which are capable of remaining operative after the battery of the aeroplane has been switched off.

***Exits***

46. (1) No person shall fly an aircraft unless every exit and every internal door in the aircraft is in working order, and subject to sub-regulations (2), (3) and (4), during take-off and landing and during any emergency, every such exit and door shall be kept free of obstruction and the operating handle shall not be fastened by locking or otherwise so as to prevent, hinder or delay door operation during emergency.

(2) An exit may be obstructed by cargo if it is an exit which, in accordance with arrangements approved by the Authority, either generally or in relation to a class of aircraft or a particular aircraft, is not required for use by passengers.

(3) Every exit from the aircraft, being an exit intended to be used by passengers in normal circumstances, shall be marked with the word "EXIT" in capital letters and every exit, being an exit intended to be used by passengers in an emergency only, shall be marked with the words "EMERGENCY EXIT" in capital letters.

(4) Every exit from the aircraft shall be marked with instructions and with diagrams, to indicate the correct method of opening the exit and the markings shall be placed on or near the inside surface of the door or other closure of the exit and, if it can be opened from the outside of the aircraft, an or near the exterior surface.

(5) Subject to compliance with sub-regulation (5), if one, but not more than one, exit from an aircraft becomes inoperative at a place where it is not reasonably practicable for it to be repaired or replaced, nothing in this regulation shall prevent that aircraft from carrying passengers until it next lands at a place where the exit can be repaired or replaced.

(6) On any flight pursuant to this sub-regulation-

- (a) the number of passengers carried and the position of the seats which the passengers occupy shall be in accordance with arrangements approved by the Authority either in relation to the particular aircraft or to a class of aircraft; and
- (b) in accordance with arrangements so approved, the exit shall be fastened by locking or otherwise, the words 'EXIT', and 'EMERGENCY EXIT' shall be covered, and the exit shall be marked by a red disc at least 23 centimetres in diameter with a horizontal white bar across it bearing the words "no exit" in red letters.

#### ***Flights over designated land areas: all aircraft***

47. No person shall operate an aircraft across land areas which have been designated by the State concerned as areas in which search and rescue would be especially difficult, unless equipped with such signalling devices and life saving equipment, including means of sustaining life as may be appropriate to the area overflown.

#### ***Survival equipment***

48. An air operator certificate holder shall not operate an aircraft across areas in which search and rescue would be especially difficult unless the aircraft is equipped with the following-

- (a) signalling equipment to make the pyrotechnical distress signals as specified in the Civil Aviation Authority (Rules of the Air and Air Traffic Control) Regulations;
- (b) at least one emergency locator transmitter capable of transmitting on both the distress frequencies 406 MHz and 121.5 MHz simultaneously; and
- (c) additional survival equipment for the route to be flown taking account of the number of persons on board, except that the equipment in the documents referred to in paragraph (b) need not be carried when the aeroplane either-
  - (i) remains within a distance from an area where search and rescue is not especially difficult corresponding to-
    - (aa) 120 minutes at the one engine inoperative cruising speed for aeroplanes capable of continuing the flight to an aerodrome with the critical power unit(s) becoming inoperative at any point along the route or planned diversions; or

- (bb) 30 minutes at cruising speed for all other aeroplanes, or
- (ii) for large turbine powered aeroplanes, no greater distance than that corresponding to 90 minutes at cruising speed from an area suitable for making an emergency landing.

***Emergency locator transmitter: aeroplanes***

49. (1) No person shall operate an aeroplane unless the aircraft is equipped with an automatically activated emergency locator transmitter capable of transmitting on 121.5 MHz and 406 MHz.

(2) No person shall operate an aeroplane in flights over water away from land suitable for making an emergency landing at a distance of more than 185 km (100 NM), in the case of single-engine aeroplane, and more than 370 km (200 NM), in the case of a multi-engine aeroplane capable of continuing flight with one engine inoperative unless the aeroplane has one survival automatic emergency locator transmitter that transmits simultaneously on 121.5 MHz and 406 MHz.

(3) A person operating over water flights shall not operate an aeroplane at a distance away from land, which is suitable for making an emergency landing, greater than that corresponding to 120 minutes at cruising speed or four nautical miles, whichever is the lesser, for aeroplanes capable of continuing the flight to an aerodrome with the critical power unit becoming inoperative at any point along the route or planned diversions, unless that aeroplane has two survival type emergency locator transmitters, one of which shall be automatic, that transmits simultaneously on 121.5 and 406 MHz.

(4) No person shall operate an aeroplane on flights over designated land areas unless the aeroplane has one automatic emergency locator transmitter that can transmit simultaneously on 121.5 and 406 MHz.

(5) A person operating an aircraft in over water operations shall install at least one survival type emergency locator transmitter referred to in sub regulation(2) in each life raft carried.

(6) For all aircraft, batteries used in emergency locator transmitters shall be replaced, or recharged if the battery is rechargeable, when-

- (a) the transmitter has been in use for more than one cumulative hour; or
- (b) 50 percent of their useful life, or for rechargeable batteries, 50 percent of their useful life of charge, has expired.

(7) The expiration date for a replacement or recharged emergency locator transmitter battery shall be legibly marked on the outside of the transmitter on all aircraft.

(8) An operator shall ensure that an emergency locator transmitter that is capable of transmitting on 406 MHz shall be coded as prescribed by the Authority and registered with the national agency responsible for initiating search and rescue or another nominated agency.

(9) For all aircraft, the useful life of a battery or useful life of charge requirements shall not apply to batteries such as water-activated batteries that are essentially unaffected during probable storage intervals.

***Emergency locator transmitter: helicopters***

50. (1) No person shall operate a helicopter unless the helicopter is fitted with automatic emergency locator transmitter.

(2) No person shall operate a helicopter on a flight over water at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed when operating in performance class 1 or 2 or beyond autorotation or safe forced landing distance from land when operating in performance class 3 unless the helicopter has one automatic survival emergency locator transmitter and at least one survival emergency locator transmitter in a raft that transmits simultaneously on 121.5 or 406 MHz.

(3) No person shall operate a helicopter over a designated land area unless it has one automatic emergency locator transmitter that transmits on 121.5 or 406 MHz.

***Portable fire extinguishers***

51. (1) No person shall operate an aircraft unless hand fire extinguishers are provided for use in crew, passenger and as applicable, cargo compartments and galleys in accordance with the following-

- (a) the type and quantity of extinguishing agent is suitable for the kinds of fires likely to occur in the compartment where the extinguisher is intended to be used and, for personnel compartments shall minimize the hazard of toxic gas concentration;
- (b) at least one hand fire extinguisher, containing halon 1211 (bromochlorodifluoromethane, CBrClF<sub>2</sub>), or equivalent as the extinguishing agent, shall be conveniently located on the cockpit for use by the flight crew;
- (c) at least one hand fire extinguisher shall be located in, or readily accessible for use in, each galley not located on the main passenger deck;
- (d) at least one readily accessible hand fire extinguisher shall be available for use in each class A or class B cargo or baggage compartment and in each class E cargo compartment that is accessible to crew members in flight; and
- (e) at least the following number of hand fire extinguishers must be conveniently located in the passenger compartment and, in the event that two or more extinguishers are required, they shall be evenly distributed in the passenger compartment-

Maximum approved passenger seating configuration	Number of extinguishers
7 to 30	1
31 to 60	2
61 to 200	3
201 to 300	4
301 to 400	5
401 to 500	6

Maximum approved passenger seating configuration	Number of extinguishers
501 to 600	7
601 or more	8

- (f) at least one of the required fire extinguishers located in the passenger compartment of an aeroplane with a maximum approved passenger seating configuration of at least 31, and not more than 60, and at least two of the fire extinguishers located in the passenger compartment of an aeroplane with a maximum approved passenger seating configuration of 61 or more must contain halon 1211 (bromochlorodifluoromethane, CBrClF<sub>2</sub>), or equivalent as the extinguishing agent.

#### ***Lavatory fire extinguisher***

52. (1) No person shall operate an aircraft carrying passengers unless each lavatory in the aeroplane is equipped with a built-in fire extinguisher for each disposal receptacle for towels, paper, or waste located within the lavatory.

(2) The built-in lavatory fire extinguishers referred in sub-regulation (1) shall be designed to discharge automatically into each disposal receptacle upon occurrence of a fire in the receptacle.

#### ***Lavatory smoke detector***

53. No person shall operate a passenger-carrying aircraft unless each lavatory in the aircraft is equipped with a smoke detector system or equivalent that provides-

- (a) warning light in the cockpit; or
- (b) a warning light or audio warning in the passenger cabin, which shall be readily detected by a cabin crew member, taking into consideration the positioning of cabin crew members throughout the passenger compartment during various phases of flight.

#### ***Crash axe***

54. (1) No person shall operate an aircraft with a maximum certificated take-off mass of over 5,700 kg or having a maximum approved passenger seating configuration of more than 9 seats unless the aircraft is equipped with at least one crash axe or crowbar located in the cockpit.

(2) Where the maximum approved passenger-seating configuration is more than 200, an additional crash axe or crowbar shall be carried and located in or near the most rearward galley area.

(3) Crash axes and crowbars located in the passenger compartment shall not be visible to the passengers.

#### ***Marking of break-in points***

55. (1) No person shall operate an aeroplane or helicopter unless the areas of the fuselage suitable for break-in by rescue crews in emergency are marked on aeroplanes and helicopters, the areas shall be marked upon the exterior surface of its fuselage with markings to show the areas, in this regulation referred to as "break-in areas", which can, for purposes of rescue in an emergency, be most readily and effectively broken into by persons outside the aeroplane or helicopter.

(2) The break-in areas shall be rectangular in shape and shall be marked by right-angled corner markings, each area of which shall be 9 cm in length along its outer edge and 3 cm in width.

(3) Where the corner markings referred to in sub-regulation (2) are more than 2 m apart, intermediate lines 9 cm x 3 cm shall be inserted so that there is not more than 2 m between adjacent markings.

(4) The words "CUT HERE IN EMERGENCY" shall be marked across the centre of each break-in area in capital letters.

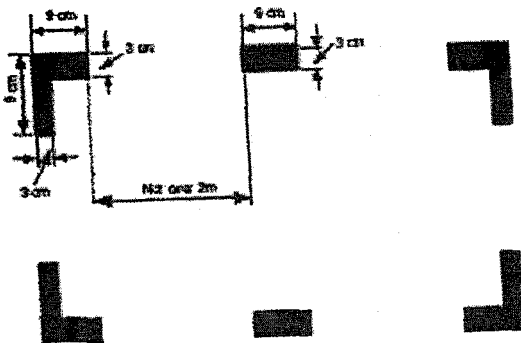
(5) The markings required under this regulation shall be-

(a) painted or affixed by other equally permanent means;

(i) red or yellow and, in any case in which the colour of the adjacent background renders red or yellow markings to be not readily visible, be outlined in such a manner that shall be readily distinguishable from the surrounding fuselage area by contrast in colour; and

(b) kept clean and unobscured at all times.

(6) Where areas of the fuselage suitable for break-in by rescue crews in emergency, are marked on an aeroplane, such areas shall be marked as shown in the following diagram-



#### *First-aid and emergency medical kit*

56. (1) An air operator certificate holder shall not operate an aeroplane unless the aeroplane is equipped with accessible and adequate medical supplies appropriate to the number of passengers the aeroplane is authorized to carry.

(2) The medical supplies referred to in sub-regulation (1) shall comprise-

(a) one or more first aid kits; and

(b) a medical kit, for the use of medical doctors or other qualified persons in treating in-flight medical emergencies for passenger flights requiring a cabin crew.

(3) The number of first-aid kits to be carried on an AOC-operated aeroplane shall be to the following scale-

Number of passenger seats installed	Number of first-aid kits required
0 to 50	1
51 to 150	2
151 to 250	3
251 and more	4

(4) The first-aid kits referred to in sub-regulation (2) shall be distributed as evenly as practicable throughout the passenger cabin.

(5) The required first-aid kits referred to in sub-regulation (2) shall be readily accessible to cabin crew, and, in view of the possible use of medical supplies outside the aeroplane in an emergency situation, shall be located to the extent practicable near an exit.

(6) The first aid kits required under this regulation shall include the following contents-

- (i) a handbook on first aid;
- (ii) ground-air visual signal code for use by survivors as specified in the Civil Aviation Authority (Rules of the Air and Air Traffic Control) Regulations;
- (iii) materials for treating injuries;
- (iv) ophthalmic ointment;
- (v) a decongestant nasal spray;
- (vi) insect repellent;
- (vii) emollient eye drops;
- (viii) sunburn cream;
- (ix) water-miscible antiseptic/skin cleanser;
- (x) materials for treatment of extensive burns;
- (xi) oral drugs, including analgesic, antispasmodic, central nervous system stimulant, circulatory stimulant, coronary vasodilator, antidiarrhoeic and motion sickness medications; and (xii) an artificial plastic airway and splints.

(7) The medical kit required under this regulation shall contain the following equipment and drugs-

(a) equipment-

- (i) one pair of sterile surgical gloves; (ii) sphygmomanometer;
- (iii) stethoscope;

- (iv) sterile scissors;
  - (v) haemostatic forceps;
  - (vi) haemostatic bandages or tourniquet;
  - (vii) sterile equipment for suturing wounds;
  - (viii) disposable syringes and needles; and
  - (ix) disposable scalpel handle and ado.
- (b) drugs-
- (i) coronary vasodilators;
  - (ii) analgesics;
  - (iii) diuretics;
  - (iv) anti-allergics;
  - (v) steroids;
  - (vi) sedatives;
  - (vii) ergometrine;
  - (viii) where compatible with Regulations of the appropriate authority, a narcotic drug in injectable form; and
  - (ix) injectable bronchodilator.

***Supplemental oxygen pressurised aeroplanes***

57. (1) An air operator certificate holder shall not operate a pressurized aeroplane at pressure altitudes above 10,000 ft unless supplemental oxygen equipment capable of storing and dispensing the oxygen supplies is provided.

(2) The amount of supplemental oxygen shall be determined on the basis of cabin pressure altitude, flight duration and the assumption that a cabin pressurization failure will occur at the pressure altitude or point of flight that is most critical from the standpoint of oxygen need and the aeroplane will descend in accordance with emergency procedures specified in the aeroplane flight manual to a safe altitude for the route to be flown that will allow continued safe flight and landing.

(3) In the event of failure, the cabin pressure altitude shall be considered the same as the aeroplane pressure altitude, unless it is demonstrated to the Authority that no probable failure of the cabin or pressurization system will result in a cabin pressure altitude equal to the aeroplane pressure altitude; under these circumstances this lower cabin pressure altitude may be used as a basis for determination of oxygen supply.



***Oxygen equipment and supply requirements: pressurized aeroplanes***

58. (1) An air operator certificate holder shall not operate an aeroplane unless the members of the flight crew on cockpit duty are supplied with supplemental oxygen in accordance with minimum requirements prescribed in Table 1.

(2) Where all occupants of cockpit seats are supplied from the flight crew source of oxygen supply, they shall be considered as flight crew members on flight deck duty for the purpose of oxygen supply.

(3) The cockpit seat occupants who are not supplied by the flight crew source of oxygen supply and flight crew members not covered under sub-regulations (1) and (2) shall be considered as passengers for the purpose of oxygen supply.

(4) Oxygen masks to be installed in an aeroplane shall be-

- (a) located so as to be within the immediate reach of flight crew members while at their assigned duty station; and
- (b) of a quick donning type for use by flight crew members in pressurized aeroplanes operating at pressure altitudes above 25,000 ft.

(5) Passengers in an aeroplane shall be supplied with supplemental oxygen in accordance with Table 1.

(6) An operator who operates an aeroplane intended to be operated at pressure altitudes above 25,000 ft shall ensure that the aeroplane is provided with-

- (a) sufficient spare outlets and masks or sufficient portable oxygen units with masks for use by all required cabin crew members;
- (b) spare outlets or portable oxygen units distributed evenly throughout the cabin to ensure immediate availability of oxygen to each required cabin crew member regardless of their location;
- (c) an oxygen dispensing unit connected to oxygen supply terminals immediately available to each occupant, wherever seated; and
- (d) total number of dispensing units and outlets which exceeds the number of seats by at least 10 percent and the extra units evenly distributed throughout the cabin.

(7) An aeroplane intended to be operated at pressure altitudes above 25,000 ft or which, if operated at or below 25,000 ft, cannot descend safely within 4 minutes to 13,000 ft, shall be provided with automatically deployable oxygen equipment immediately available to each occupant wherever seated and the total number of dispensing units and outlets shall exceed the number of seats by at least 10 percent with the extra units evenly distributed throughout the cabin.

(8) The oxygen supply requirements specified in Table 1 may, in the case of aeroplanes not certificated to fly above 25,000 ft, be reduced to the entire flight time between 10,000 ft and 13,000 ft cabin pressure altitudes for all required cabin crew members and for at least 10 percent of the passengers if, at all points along the route to be flown, the aeroplane is able to descend safely within 4 minutes to a cabin pressure altitude of 13,000 ft.

**TABLE 1**  
**OXYGEN -MINIMUM REQUIREMENTS FOR SUPPLEMENTAL OXYGEN**  
**FOR PRESSURISED AEROPLANES**  
 (Note 1)

(a)	(b)
SUPPLY FOR	DURATION AND CABIN PRESSURE ALTITUDE
	Entire flight time when cabin pressure altitude exceeds 13 000 feet and entire flight time when the cabin pressure altitude exceeds 10 000 feet but does not exceed 13000 feet after the first 30 minutes at those altitudes, but in no case less than:
1. All occupants of flight deck seats on flight deck duty	(i) 30 minutes for aeroplanes certificated to fly at altitudes not exceeding 25 000 feet (note 2)  (ii) 2 hours for aeroplanes certificated to fly at altitudes not exceeding 2000 feet (Note 3)
2. All required cabin crew members	Entire flight time when cabin pressure altitude exceeds 13000 Feet but not less than 30 minutes (Note 2) and entire flight time when cabin pressure altitude is greater than 10000 feet. But does not exceed 13000 feet after the first 30 minutes at these altitudes.
3. 100% of passengers (Note 5)	Entire flight time when the cabin pressure altitude exceeds 15 000 feet but in no case less than 10 minutes (Note 4)
4. 30% Of passengers (Note 5)	Entire flight time when the cabin pressure altitude exceeds 14000 feet but does not exceed 15000 feet.
5. 10% of passengers (Note 5)	Entire flight time when the cabin pressure altitude exceeds 10 000 feet but does not exceed 14000 feet after the first 30 minutes at these altitudes.

**Note 1:** The supply provided must take account of the cabin pressure altitude and descent profile for the routes concerned.

**Note 2:** The required minimum supply is that quantity of oxygen necessary for a constant rate of descent from the aeroplane's maximum certificated operating altitude to 10,000 ft in 10 minutes and followed by 20 minutes at 10,000 ft.

**Note 3:** The required minimum supply is that quantity of oxygen necessary for a constant rate of descent from the aeroplane's maximum certificated operating altitude to 10,000 ft in 10 minutes and followed by 110 minutes at 10,000 ft; the oxygen required under regulation 58 (1) may be included in determining the supply required.

**Note 4:** The required minimum supply is that quantity of oxygen necessary for a constant rate of descent from the aeroplane's maximum certificated operating altitude to 15,000 ft in 10 minutes.

**Note 5:** For the purpose of this Table 'passengers' means passengers actually carried and include infants.

***Supplemental oxygen non-pressurized aircraft***

59. (1) An operator shall not operate a non-pressurized aircraft at altitudes above 10,000 ft unless supplemental oxygen equipment capable of storing and dispensing the oxygen supplies is provided.

(2) The amount of supplemental oxygen for sustenance required for a particular operation shall be determined on the basis of flight altitudes and flight duration, consistent with the operating procedures established for each operation in the operations manual and with the routes to be flown, and with the emergency procedures specified in the operations manual.

***Oxygen supply requirements – non-pressurized aircraft***

60. (1) A member of the flight crew on cockpit duty shall be supplied with supplemental oxygen in accordance with Table 2; where all occupants of cockpit seats are supplied from the flight crew source of oxygen supply then they shall be considered as flight crew members on cockpit duty for the purpose of oxygen supply.

(2) Cabin crew members and passengers shall be supplied with oxygen in accordance with Table 2 and cabin crew members carried in addition to the minimum number of cabin crew members required, and additional crew members, shall be considered as passengers for the purpose of oxygen supply.

**TABLE 2**  
**SUPPLEMENTAL OXYGEN FOR NON-PRESSURIZED AIRCRAFT**

SUPPLY FOR	DURATION AND PRESSURE ALTITUDE
1. All occupants of flight deck seats on flight deck duty	Entire flight time at pressure altitudes above 10000 feet
2. All required cabin crew members	Entire flight time at pressure altitudes above 13000 feet and for any period exceeding 30 minutes at pressure altitudes above 10000 feet but not exceeding 13000 feet
3. 100% of passengers (see note)	Entire flight time at pressure altitudes above 13000 feet
4. 10% of passengers (see note)	Entire flight time after 30 minutes at pressure altitudes greater than 10000 feet but not exceeding 13000 feet
<b>Note:</b> For the purpose of this Table "passengers" means passengers actually carried and includes infants under the age of 12	

***Protective breathing equipment***

61. (1) Subject to sub-regulation (2), an air operator certificate holder shall not operate an aeroplane with a maximum certificated takeoff mass of over 5,700 kg having a maximum approved seating configuration of more than 19 seats unless-

- (a) the aeroplane has protective breathing equipment to protect the eyes, nose and mouth of each flight crew member while on cockpit duty and to provide oxygen for a period of not less than fifteen minutes; and

- (b) the aeroplane has sufficient protective breathing equipment to protect the eyes, nose and mouth of all required cabin crew members and to provide oxygen for a period of not less than 15 minutes.
- (2) Where the flight crew is more than one and a cabin crew member is not carried, portable protective breathing equipment shall be carried to protect the eyes, nose and mouth of one member of the flight crew and to provide oxygen for a period of not less than 15 minutes.
- (3) The oxygen supply for protective breathing equipment may be provided by the required supplemental oxygen system.
- (4) The protective breathing equipment intended for flight crew use shall be conveniently located on the cockpit and be easily accessible for immediate use by each required flight crew member at their assigned duty station.
- (5) The protective breathing equipment intended for cabin crew use shall be installed adjacent to each required cabin crew member duty station.
- (6) Easily accessible portable protective breathing equipment shall be provided and located at or adjacent to the required hand fire extinguishers except that, where the fire extinguisher is located inside a cargo compartment, the protective breathing equipment shall be stowed outside but adjacent to the entrance to that compartment.
- (7) The protective breathing equipment shall not while in use, prevent required communication.

***First-aid oxygen dispensing units***

62. (1) An AOC holder shall not conduct a passenger carrying operation in a pressurized aeroplane with a seating capacity of more than 19 seats at altitudes above 25,000 ft unless the aeroplane is equipped with-

- (a) undiluted first-aid oxygen for passengers who, for physiological reasons, may require oxygen following a cabin depressurization; and
- (b) a sufficient number of dispensing units, but in no case less than 2, with a means for cabin crew to use the supply.
- (2) The amount of first-aid oxygen required under sub-regulation (1) (a), for a particular operation and route shall be determined on the basis of-
  - (a) flight duration after cabin depressurization at cabin altitudes of more than 8,000 ft;
  - (b) an average flow rate of at least 3 litres standard temperature pressure dry per minute per person; and
  - (c) at least 2 percent of the passengers carried, but in no case for less than one person.
- (3) The amount of first-aid oxygen required for a particular operation shall be determined on the basis of cabin pressure altitudes and flight duration consistent with the operating procedures established for each operation and route.
- (4) The oxygen equipment provided shall be capable of generating a mass flow to each user of at least 4 litres per minute, standard temperature pressure dry, means may be provided to decrease the flow to not less than 2 litres per minute, standard temperature pressure dry, at any altitude.

***Megaphones: aeroplane***

63. (1) An air operator certificate holder shall not operate a passenger-carrying aeroplane unless that aeroplane is equipped with portable battery-powered megaphones readily accessible to the crew members assigned to direct emergency evacuation.

(2) The number and location of megaphones required by sub-regulation (1) shall be determined as follows-

- (a) on aeroplanes with a seating capacity of more than 60 and less than 100 passengers, one megaphone shall be located at the most rearward location in the passenger cabin where it would be readily accessible to a normal flight attendant seat; and
- (b) on aeroplanes with a seating capacity of more than 99 passengers, 2 megaphones in the passenger cabin with one installed at the forward end and the other at the most rearward location where it would be readily accessible to a normal flight attendant seat.

(3) For aeroplanes with more than one passenger deck in all cases where the total passenger seating configurations is more than 60, at least one megaphone is required.

***Megaphones: helicopters***

64. An operator shall not operate a helicopter with a total maximum approved passenger-seating configuration of more than 19 unless the helicopter is equipped with portable battery-powered megaphones readily available for use by crew members during emergency evacuation.

***Individual flotation devices***

65. (1) An air operator certificate (AOC) holder shall not operate an aircraft on flights over water at greater than gliding distance from land suitable for making an emergency landing unless the aircraft is equipped with one life jacket or equivalent individual flotation device for each person on board the aircraft.

(2) The life jackets or equivalent individual flotation devices referred to in sub-regulation (1) shall be stowed in a position easily accessible from the seat or berth of the person for whose use it is provided.

(3) An AOC holder who operates an aircraft on extended overwater operations shall ensure that each individual flotation device is fitted with an approved survivor locator light.

(4) All seaplanes and amphibians for all flights shall be equipped with a life jacket or equivalent individual flotation device, for each person on board, stowed in a position easily accessible from the seat or berth of the person for whose use it is provided.

***Life rafts***

66. (1) An air operator certificate (AOC) holder shall not operate an aeroplane in commercial air transport at a distance away from land, which is suitable for making an emergency landing, greater than that corresponding to-

- (a) 120 minutes at cruising speed or 400 nautical miles, whichever is the lesser, for aeroplanes capable of continuing the flight to an aerodrome with the critical power unit becoming inoperative at any point along the route or planned diversions; or

- (b) 30 minutes at cruising speed or 100 nautical miles, whichever is the lesser, for all other aeroplanes, without having on the aeroplane enough life rafts with rated capacities and buoyancy to accommodate the occupants of the aeroplane.

(2) Unless excess rafts of enough capacity are provided, the buoyancy and seating capacity of the rafts referred in sub-regulation (1) shall accommodate all occupants of the aeroplane in the event of a loss of one raft of the largest rated capacity.

(3) The life rafts to be provided under this regulation shall be stowed so as to facilitate readily use in emergency and be equipped with-

- (a) a survivor locator light;
- (b) a survival kit;
- (c) life lines, and means of attaching one life raft with another;
- (d) an emergency locator transmitter as specified in regulation 47;
- (e) a sea anchor;
- (f) means of protecting the occupants from the elements;
- (g) paddles or other means of propulsion;
- (h) marine-type pyrotechnic signalling devices;
- (i) a waterproof torch;
- (j) means of making sea water drinkable, unless the full quantity of fresh water is carried as specified in sub-regulation (1)(ii);
- (k) for each 4 or proportion of 4 persons the life raft is designed to carry-
  - (i) 100 grammes of glucose toffee tablets;
  - (ii) 1/2 litre of fresh water in durable containers or in any case in which it is not reasonably practicable to carry the 1/2 litre of water, as large a quantity of fresh water as is reasonably practicable in the circumstances; provided that, in no case shall the quantity of water carried be less than is sufficient, when added to the amount of fresh water capable of being produced by means of the equipment specified in paragraph (k) to provide 1/2 litre of water for each 4 or proportion of 4 persons the life raft is designed to carry;
- (l) first aid equipment; and
- (m) two survival beacon radio apparatus for every 8 life rafts, and an additional survival beacon radio apparatus for every additional 4 or proportion of 14 life rafts

(4) The items specified in sub-regulation (3) (i) to (m) shall be contained in one pack.

(5) The life rafts referred in sub-regulation (1) which are not deployable by remote control and which have a mass of more than 40 kg shall be equipped with some means of mechanically assisted deployment.

(6) A seaplane and amphibian aircraft shall be equipped with life rafts.

(7) An operator shall not operate a helicopter on a flight over water at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed when operating in performance class 1 or 2 or three minutes flying time at normal cruising speed when operating in performance class 3 unless the helicopter carries-

- (a) in the case of an helicopter carrying-
  - (i) less than 12 persons, a minimum of one life-raft with a rated capacity of not less than the maximum number of persons on board;
  - (ii) more than 11 persons, a minimum of 2 life-rafts sufficient together to accommodate all persons capable of being carried on board, where one life-raft of the largest rated capacity may be lost, shall be sufficient to accommodate all persons on the helicopter.

***Life jackets: helicopters***

67. No operator shall operate a helicopter for any operations on water or flight over water when operating performance-

- (a) class 3 beyond auto rotational distance from land; or
- (b) class 1 or 2 at a distance from land corresponding to more than 10 minutes flying time at normal cruise speed; or
- (c) class 2 or 3 when taking off or landing at a heliport where the take off or approach path is overwater;

unless the helicopter is equipped with life jackets equipped with a survivor locator light, for each person on board stowed in an easily accessible position with safety emergency locator transmitter or harness fastened, from the seat or berth of the person for whose use it is provided and an individual infant flotation device, equipped with a survivor locator light, for use by each infant on board.

***Flotation devices for helicopters ditching***

68. No person shall fly a helicopter over water at a distance from land corresponding to more than 10 minutes at normal cruise speed in the case of performance class 1 or 2 helicopters, or flying over water beyond auto-rotational or safe forced landing distance from land in the case of performance Class 3 helicopters, unless the helicopter is equipped with a permanent or rapidly deployable means of flotation so as to ensure safe ditching of the helicopter.

**PART VIII**

**MISCELLANEOUS SYSTEMS AND EQUIPMENT**

***Seats, safety belts and shoulder harnesses***

69. (1) No person shall operate an aircraft in passenger operations unless the aircraft is equipped with the following seats, safety belt and shoulder harnesses that meet the airworthiness requirements for type certification of that aircraft-

- (a) a seat or berth with safety belt for each person on board over the age of 2 years;
- (b) a supplementary loop belt or another restraint device for each infant;

- (c) a berth designed to be occupied by 2 persons, such as a multiple lounge or divan seat, shall be equipped with an approved safety belt for use by 2 occupants during en route flight only;
- (d) a safety harness, which includes shoulder straps and a safety belt which may be used independently, for each flight crew seat;
- (e) a safety harness for each pilot seat which shall incorporate a device which shall automatically restrain the torso of the occupant in the event of rapid deceleration;
- (f) seat in the passenger compartment for each cabin crew member.

(2) The safety harness referred to in sub-regulation 1 for each pilot seat shall incorporate a device to prevent a suddenly incapacitated pilot from interfering with the flight controls.

(3) In the case of an aircraft carrying out erect spinning, the Authority may permit a safety belt with one diagonal shoulder harness strap to be fitted if the Authority determines that such restraint is sufficient for carrying out erect spinning in that aircraft, and that it is not reasonably practicable to fit a safety harness in that aircraft.

#### ***Passenger and pilot compartment doors***

70. (1) No operator shall operate an aeroplane which is equipped with a flight crew compartment door unless the door is capable of being locked and has means by which cabin crew can discreetly notify the flight crew in the event of suspicious activity or security breaches in the cabin.

(2) A passenger-carrying aeroplane of a maximum certificated take-off mass in excess of 45 500 kg or with a passenger seating capacity greater than 60 shall be equipped with an approved flight crew compartment door which shall be capable of being locked and unlocked from the station of either pilot, that is designed to resist penetration by small firearms, grenade shrapnel and forcible intrusions by unauthorized persons.

(3) In all aeroplanes which are equipped with a flight crew compartment door in accordance with sub-regulation (2)-

- (a) this door shall be closed and locked from the time all external doors are closed following embarkation until any such door is opened for disembarkation, except when necessary to permit access and egress by authorized persons; and
- (b) means shall be provided for monitoring from either pilot's station the entire door area outside the flight crew compartment to identify persons requesting entry and to detect suspicious behaviour or potential threat.

#### ***Passenger information signs***

71. An air operator certificate holder shall not operate a passenger-carrying aeroplane unless-

- (a) the aeroplane is equipped with a passenger information sign visible from passenger seats notifying when smoking is prohibited;
- (b) if the pilot in command cannot, from the PIC own seat, see all the passengers' seats in the aircraft, a means of indicating to passengers that the seat belt should be fastened; and



- (c) the aeroplane is equipped with a sign or placard affixed to each forward bulkhead and each passenger seat back that reads "Fasten Seat Belt While Seated."

***Public address system***

72. No air operator certificate holder shall operate a passenger carrying aeroplane with a maximum approved passenger seating configuration of more than 19 unless a public address system is installed that-

- (a) operates independently of the interphone systems except for handsets, headsets, microphones, selector switches and signalling devices;
- (b) for each required floor level passenger emergency exit which has an adjacent cabin crew seat, has a microphone which is readily accessible to the seated cabin crew member, except that one microphone may serve more than one exit, if the proximity of the exits allows unassisted verbal communication between seated cabin crew members;
- (c) is capable of operation within 10 seconds by a cabin crew member at each of those stations in the compartment from which its use is accessible; and
- (d) is audible and intelligible at all passenger seats, toilets and cabin crew seats and workstations.

***Materials for cabin interiors***

73. An operator shall not operate an aeroplane unless the seat cushions in any compartment occupied by crew or passengers other than those on flight crew member seat meet requirements pertaining to fire protection as specified by the Authority.

***Materials for cargo and baggage compartments***

74. (1) An air operator certificate holder shall not operate a passenger carrying aeroplane unless, each class C cargo compartment greater than 200 cubic feet in volume in a transport category has ceiling and sidewall liner panels which are constructed of-

- (a) glass fibre reinforced resin; or
- (b) materials which meet the test requirements for flame resistance of cargo compartment liners as prescribed for type certification.

(2) In this regulation "liner" includes any design feature, such as a joint or fastener, which would affect the capability of the liner to safely contain fire.

(3) A class C cargo or baggage compartment is one in which-

- (a) there is a separate approved smoke detector or fire detector system to give warning at the pilot or flight engineer station;
- (b) there is an approved built-in fire extinguishing or suppression system controllable from the cockpit;
- (c) there is means to exclude hazardous quantities of smoke, flames or extinguishing agent, from any compartment occupied by the crew or passengers; and

- (d) there are means to control ventilation and drafts within the compartment so that the extinguishing agent used can control any fire that may start within the compartment.

***Power supply, distribution and indication system***

75. (1) An air operator certificate holder shall not operate an aeroplane unless the aeroplane is equipped with an electrical power supply and distribution system that-

- (a) meets the airworthiness requirements for certification of an aeroplane in the transport category, as specified by the Authority; or
  - (b) is able to produce and distribute the load for the required instruments and equipment, with use of an external power supply if any one electrical power source or component of the power distribution system fails and a means for indicating the adequacy of the electrical power being supplied to required flight instruments.
- (2) Engine-driven sources of energy when used shall be on separate engines.

***Protective circuit fuses***

76. An air operator certificate holder shall not operate an aeroplane in which protective circuit fuses are installed unless there are spare protective circuit fuses available for use in flight equal to at least 10 percent of the number of fuses of each rating or 3 of each rating whichever is the greater.

***Aeroplanes in icing conditions***

77. An air operator certificate holder shall not operate an aeroplane in circumstances in which icing conditions are reported to exist or are expected to be encountered, unless the aeroplane is equipped with suitable de-icing or anti-icing devices.

***Icing detection***

78. (1) An air operator certificate (AOC) holder shall not operate an aircraft in expected or actual icing conditions at night unless the aircraft is equipped with a means to illuminate or detect the formation of ice.

(2) Any illumination that is used on an AOC holder-operated aircraft shall be of a type that shall not cause glare or reflection that would handicap crew members in the performance of their duties.

***Pitot Indication systems***

79. An air operator certificate holder shall not operate an aeroplane equipped with a flight instrument pitot heating system unless the aeroplane is also equipped with an operable pitot heat indication system that complies with the following requirements-

- (a) the indication provided shall incorporate an amber light that is in clear view of a flight crew member; and
- (b) the indication provided shall be designed to alert the flight crew if either the pitot heating system is switched "off," or the pitot heating system is switched "on" and any pitot tube heating element is inoperative.

***Static pressure system***

80. An air operator certificate holder shall not operate an aeroplane in accordance with instrument flight rules or by night unless the aeroplane is equipped with 2 independent static pressure systems, except that for propeller-driven aeroplanes with maximum certificated take-off mass of 5,700 kg or less, one static pressure system and one alternate source of static pressure is allowed.

***Windshield wipers***

81. An air operator certificate holder shall not operate an aeroplane with a maximum certificated take off mass of over 5,700 kg, unless the aeroplane is equipped at each pilot station with a windshield wiper or equivalent means to maintain a clear portion of the windshield during precipitation

***Chart holder***

82. An air operator certificate holder shall not operate an aeroplane in accordance with instrument flight rules or by night unless the aeroplane is equipped with a chart holder installed in an easily readable position which can be illuminated for night operations.

***Cosmic radiation detection equipment***

83. An air operator certificate holder shall not operate an aeroplane above 15,000 metres (49,000 feet) unless-

- (a) that aeroplane is equipped with an instrument to measure and indicate continuously the dose rate of total cosmic radiation being received, that is the total of ionising and neutron radiation of galactic and solar origin, and the cumulative dose on each flight;
- (b) a system of in-board quarterly radiation sampling acceptable to the Authority is established.

***Seaplanes and amphibians: miscellaneous equipment***

84. An air operator certificate holder shall not operate a seaplane or an amphibian aircraft on water unless the aircraft is equipped with-

- (a) a sea anchor and other equipment necessary to facilitate mooring, anchoring or manoeuvring the aircraft on water, appropriate to its size, weight and handling characteristics; and
- (b) equipment for making the sound signals prescribed in the Convention on the International Regulation for Prevention of Collision at Sea, 1972, where applicable.

## PART IX

### GENERAL

***Suspension and revocation of approval***

85. (1) The Authority may, in the public interest, suspend provisionally pending further investigation or re-examine the original certification basis of any approval, exemption or other document issued or granted under these Regulations.

(2) The Authority may, upon the completion of an investigation and in the public interest, revoke, suspend or vary any approval, exemption or other document issued or granted under these Regulations

(3) The Authority may, in the public interest, prevent any person or aircraft from flying.

(4) A holder or any person having the possession or custody of any approval, exemption or other documents which has been revoked, suspended or varied under these Regulations shall surrender it to the Authority within a reasonable time after being required to do so by the Authority

(5) The breach of any condition subject to which any approval, exemption or any other document, other than a licence issued in respect of an aerodrome, has been granted or issued under these Regulations shall render the document invalid during the continuance of the breach.

### ***Use and retention of records***

86. (1) No person shall-

- (a) use any approval, exemption or other document issued or required by or under these Regulations which has been forged, altered, revoked or suspended or to which that person not entitled; or
- (b) forge or alter an approval, exemption or other document issued or required by or under these Regulations; or
- (c) lend any approval, exemption or other document issued or required by or under these Regulations to any other person; or
- (d) make any false representation for the purpose of procuring for himself or herself or any other person the grant issue renewal or variation of any such approval, or exemption.

(2) During the period for which it is required under these Regulations to be preserved, no person shall mutilate, alter, render illegible or destroy any records required by or under these Regulations to be maintained, or knowingly make or procure or assist in the making of, any false entry in any record or willfully omit to make a material entry in record.

(3) All entries in records required to be maintained by or under these Regulations shall be made in a permanent and indelible material.

(4) No person shall purport to issue any certificate, document or exemption under these Regulations unless that person is authorized to do so by the Authority.

(5) No person shall issue any approval, authorization or exemption of the kind referred to in sub-regulation (4) unless that person is that all statements in the certificate are correct, and that the applicant is qualified to hold that certificate.

### ***Reports of violation***

87. (1) A person who knows of a violation of the Civil Aviation Authority Act or any regulation or order issued under the Act, shall report it to the Authority.

(2) The Authority will determine the nature and type of any additional investigation or enforcement action that need be taken.

***Enforcement of directions***

88. A person who fails to comply with any direction given to that person by the Authority or by any authorized person under any provision of these Regulations shall be deemed for the purposes of these Regulations to have contravened that provision.

***Aeronautical user fees***

89. (1) The Authority may notify the fees to be charged in connection with the issue, validation, renewal, extension or variation of any certificate, licence or other document, including the issue of a copy or the undergoing of any examination, test, inspection or investigation or the grant of any permission or approval, required by or for the purpose of these Regulations or any orders, notices or proclamations made under these Regulations.

(2) Upon an application being made in connection with which any fee is chargeable in accordance with sub-regulation (1), the applicant shall be required, before the application is entertained, to pay the fee so chargeable.

(3) If, after payment has been made, the application is withdrawn by the applicant or otherwise ceases to have effect or is refused, the Authority shall not refund the payment made.

***Application of regulations to Government and visiting forces, etc***

90. (1) These Regulations shall apply to aircraft, not being military aircraft, belonging to or exclusively employed in the service of the Government, and for the purposes of such application, the Department or other authority for the time being responsible for management of the aircraft shall be deemed to be the operator of the aircraft and in the case of an aircraft belonging to the Government, to be the owner of the interest of the Government in the aircraft.

(2) Except as otherwise expressly provided, the naval, military and air force authorities and member of any visiting force and property held or used for the purpose of that force shall be exempt from the provisions of these regulations to the same extent as if the visiting force formed part of the military force of Swaziland.

(3) Except where the context otherwise requires, the provisions of these Regulations-

- (a) in so far as they apply, whether by express reference or otherwise, to aircraft registered in Swaziland, shall apply to such aircraft wherever they may be;
- (b) in so far as they apply, whether by express reference or otherwise, to other aircraft, shall apply to such aircraft when they are within Swaziland;
- (c) in so far as they prohibit, require or regulate, whether by express reference or otherwise, the doing of anything by any person in or by any of the crew of, any aircraft registered in Swaziland, shall apply to such persons and crew, wherever they may be; and
- (d) in so far as they prohibit, require or regulate, whether by express reference or otherwise, the doing of anything in relation to any aircraft registered in Swaziland by other persons shall, where such persons are citizens of Swaziland, apply to them wherever they may be.

**PART X**  
**OFFENCES AND PENALTIES**

***Extraterritorial application of Regulations***

91. A person who contravenes a provision of these Regulations may have a licence, certificate, approval, authorization, exemption or other document revoked or suspended.

***Contravention of Regulations and penalties***

92. (1) If any provision of these Regulations, orders, notices or proclamations made under these Regulations is contravened in relation to an aircraft, the operator of that aircraft and the pilot in command, if the operator or the PIC is not the person who contravened that provision shall, without prejudice to the liability of any other person under these Regulations for that contravention, be deemed to have contravened that provision unless the operator or pilot in command proves that the contravention occurred without their consent or connivance and that they exercised all due diligence to prevent the contravention

(2) A person who contravenes any provision specified as an “A” provision in the Second Schedule commits an offence and is liable, on conviction to a fine not exceeding fifty thousand Emalangeni for each offence and or to imprisonment for a term not exceeding one year or both.

(3) A person who contravenes any provision specified as a “B” provision in the Second Schedule commits an offence and is liable, on conviction, to a fine not exceeding one hundred thousand Emalangeni for each offence and or to imprisonment for a term not exceeding three years or both.

(4) A person who contravenes any provision of these Regulations not being a provision referred to in the Second Schedule to these Regulations, commits an offence and is liable on conviction to a fine not exceeding one hundred thousand Emalangeni and in the case of a second or subsequent conviction for a similar offence, to a fine not exceeding two hundred thousand Emalangeni.

**PART XI**  
**EXEMPTIONS**

***Requirements for Application***

94. (1) A person may apply to the Authority for an exemption from any of these Regulations.

(2) An application for an exemption shall be submitted not less than 60 days before the proposed effective date, to obtain timely review.

(3) A request for an exemption shall contain the applicant’s-

(a) name;

(b) physical address and mailing address; (c) (c) telephone number;

(d) fax number if available; and

(e) email address if available;

(4) The application shall be accompanied by a fee specified by the Authority.

***Substance of the request for exemption***

95. (1) An application for an exemption shall contain the following-

- (a) a citation of the specific requirement from which the applicant seeks exemption;
- (b) an explanation of why the exemption is needed;
- (c) a description of the type of operations to be conducted under the proposed exemption;
- (d) the proposed duration of the exemption;
- (e) an explanation of how the exemption would be in the public interest, that is, benefits the public as a whole;
- (f) a detailed description of the alternative means by which the applicant will ensure a level of safety equivalent to that established by the regulation in question;
- (g) a review and discussion of any known safety concerns with the requirement, including information about any relevant accidents or incidents of which the applicant is aware; and

(2) Where the applicant seeks emergency processing, the application shall contain supporting facts and reasons that the application was not timely filed and the reasons it is an emergency.

(3) The Authority may deny an application if the Authority finds that the applicant has not justified the failure to apply for an exemption in a timely fashion.

**REVIEW, PUBLICATION AND ISSUE OR DENIAL OF THE EXEMPTION*****Initial review by the Authority***

96. (1) The Authority shall review the application for accuracy and compliance with the requirements of regulations 94 and 95.

(2) If the application appears on its face to satisfy the provisions of this regulation and the Authority determines that a review of its merits is justified, the Authority will publish a detailed summary of the application in either the Gazette, aeronautical information circular or at least one local daily newspaper for comment and specify the date by which comments must be received by the Authority for consideration.

(3) Where the filing requirements of regulations 94 and 95 have not been met, the Authority will notify the applicant and take no further action until the applicant corrects the application and re-files it in accordance with these Regulations.

(4) If the request is for emergency relief, the Authority shall publish the application or the decision of the Authority as soon as possible after processing the application.

***Evaluation of the request***

97. (1) After initial review, if the filing requirements have been satisfied, the Authority shall conduct an evaluation of the request to include-

- (a) determination of whether an exemption would be in the public interest;

- (b) a determination, after a technical evaluation of whether the proposal of the applicant would provide a level of safety equivalent to that established by the regulation, although where the Authority decides that a technical evaluation of the request would impose a significant burden on the technical resources of the Authority, the Authority may deny the exemption on that basis;
- (c) a determination of whether a grant of the exemption would contravene the applicable ICAO Standards and Recommended Practices; and
- (d) a recommendation based on the preceding elements, of whether the request should be granted or denied and of any conditions or limitations that should be part of the exemption.

(2) The Authority shall notify the applicant by letter and publish a detailed summary of its evaluation and decision to grant or deny the request.

(3) The summary referred to in sub-regulation (2) shall specify the duration of the exemption and any conditions or limitations of the exemption.

(4) If the exemption affects a significant population of the aviation community of Swaziland the Authority shall publish the summary in aeronautical information circular.

## PART XII TRANSITION AND SAVINGS

### *Transition and savings*

98. A valid licence, certificate, permit or authorization issued or granted by the Authority before the commencement of these Regulations shall remain operational until it expires or is revoked, annulled or replaced.

### FIRST SCHEDULE:

#### FLIGHT DATA RECORDER-INFORMATION TO BE RECORDED

#### FIRST SCHEDULE

REGULATION 41

#### FLIGHT DATA RECORDER - INFORMATION TO BE RECORDED

S/N	REQUIREMENTS FOR FLIGHT PATH AND SPEED	TYPE OF FDR				MEASUREMENT RANGE	RECORDING INTERVAL (a) (seconds)	ACCURACY LIMITS (b) SENSOR INPUT COMPARED TO FDR READ-OUT
		I	IA	II	IIA			
2	Pressure Altitude	X	X	X	X	-300m (-1,000ft) to max. certificated altitude of aircraft+ 1,500m (5,000ft)	1	+/-30m to +/-200m (+/-1,00ft to +/-700ft)
3	Indicated airspeed or calibrated airspeed	X	X	X	X	95km/h (50kt) to max V <sub>so</sub> V <sub>so</sub> to 1,2 VD	1	+/-5% +/-3%



27	Air-ground status and each landing gear air-ground sensor when practicable	X	X	-	-	Discreet	1	-
14	Total or outside air temperature	X	X	X	X	Sensor range	2	+/- 2/C
4	Heading (Primary crew reference)	X	X	X	X	360	1	+/- 2
5	Normal Acceleration	X	X	X	X	-3g to +6g	0125	+/- 1,5% max range excluding datum error of 5%
17	Lateral Acceleration	X	X	-	-	+/- 1g	0,25	+/- 1,5% max range excluding datum error of 5%
16	Longitudinal acceleration	X	X	-	-	+/- 1g	0,25	+/- 1,5% max range excluding datum error of 5%
1	Time (UTC when available, otherwise elapsed time)	X	X	X	X	24 hours	4	+/- 0,125% per hour
31	Navigational data*: drift angle, wind speed, wind direction, latitude, longitude, groundspeed*	X	X	-	-	As installed	1	As installed
20	Radio altitude	X	X	-	-	-6m to 750(-20ft to 2,500ft)	1	+/- 0,6m (+/- 2ft) or +/- 3% whichever is greater below 150m (500ft) and +/- 5% above 150m (500 ft)
	<b>REQUIREMENTS FOR ALTITUDE</b>							
6	PITCH ALTITUDE	X	X	X	X	+/- 75	1	+/- 2%
7	ROLL ALTITUDE	X	X	X		+/- 180	1	+/- 2%
-	Yaw or slide slip Angle*	-	X	-	-	-	-	-
29	Angle of Attack	-	X	-	-	Full range	0,5	As installed
	Requirements for Engine Power							

REQUIREMENTS FOR ALTITUDE								
9	Engine thrust/power propulsive thrust/ power on each engine, cockpit thrust/power lever position	X	X	X	X	Full range	1 (per engine)	+/-2%
12	Thrust Revenue Reverse Status*	X	X	X	X	Stowed, in transit reverse	1 (per engine)	-
-	ENGINE THRUST COMMAND*	-	X	-	-	-	-	-
-	ENGINE THRUST TARGET*	-	X	-	-	-	-	-
-	ENGINE THRUST BLEED VALVE POSITION*	-	X	-	-	-	-	-
-	ADDITIONAL ENGINE PARAMETERS* EPR,N1,INDICATED VIBRATION LEVEL, N2, EGT, TLA, FUEL FLOW, FUEL CUT-OFF LEVER POSITION, N3	-	X	-	-	-	-	-
S/N	REQUIREMENTS FOR CONFIGURATION	TYPE OF FDR				MEASUREMENT RANGE	RECORDING INTERVAL (c) (seconds)	Accuracy limits (SENSOR INPUT COMPARED TO FDR READ-OUT)
		I	IA	II	IIA			
19	Pitch trim surface position	X	X	-	-	Full range	1	+/-3% unless higher accuracy uniquely required
10	Flaps*: trailing edge flap position, cockpit control selection	X	X	X	X	Full range or each discrete position	2	+/-5% or as pilotis indicator
11	Slats*: leading edge flap (slat) position, cockpit control selection	X	X	X	X	Full range or each discrete position	2	+/-5% or as pilotis indicator
32	Landing gear*, landing gear, gear selector positions	X	X	X	X	Discrete	4	As installed

-	Yaw trim surface position*	-	X	-	-	-	-	-
-	Roll trim surface position *	-	X	-	-	-	-	-
-	Cockpit trim control input position pitch*	-	X	-	-	-	-	-
-	Cockpit trim control input position roll*	-	X	-	-	-	-	-
13	Ground spoiler and speed brake*: Ground spoiler position, ground spoiler selection, speed brake position, speed brake selection	X	X	X	X	Full range or each discrete position	1	+/- 2% unless higher accuracy uniquely required
-	De-icing anti-icing systems selection*	-	X	-	-	-	-	-
-	Hydraulic pressure (each system)*	X	X	-	-	-	-	-
-	Fuel quantity*	-	X	-	-	-	-	-
-	AC electrical bus status*	-	X	-	-	-	-	-
-	DC electrical bus status*	-	X	-	-	-	-	-
-	APU bleed valve position	-	X	-	-	-	-	-
-	Computed centre of gravity*	-	X	-	-	-	-	-
	Requirements for Operation							
24	Master warnings		X	X	-	-	Discrete	1 -
-	Warnings	-	X	-	-	-	-	-
18	Primary flight control surface and primary flight control pilot input: pitch axis, roll axis, yaw axis	X	X	-	-	Full range	1	+/- 2% unless higher accuracy uniquely required
23	Marker beacon passage	X	X	-	-	Discrete	1	-
25	Each navigation receiver frequency selection: NAV 1 and 2	X	X	-	-	Full range	4	As installed

8	Manual radio transmission keying and COCKPIT VOICE RECORDER/FDR synchronisation reference	X	X	X	X	On-off (one discrete)	1	-
15	Autopilot/auto throttle/ AFCS mode and engagement status*	X	X	X	X	A suitable combination of discretes	1	-
-	Selected barometric setting*: pilot, first officer	-	X	-	-	-	-	-
-	Selected altitude (all pilot selectable modes of operation)* -	-	X	-	-	-	-	-
-	Selected speed (all pilot selectable modes of operation)*	-	X	-	-	-	-	-
-	Selected Mach (all pilot selectable modes of operation)*	-	X	-	-	-	-	-
-	Selected vertical speed (all pilot selectable modes of operation)*	-	X	-	-	-	-	-
S/N	REQUIREMENTS FOR CONFIGURATION	TYPE OF ERROR		MEASUREMENT RANGE			RECORDING INTERVAL (c) (seconds)	Accuracy limits (SENSOR INPUT COMPARED TO FDR READ-OUT)
		I	IA	II	IIA			
	Selected heading (all pilot selectable modes of operation)*	-	X	-	-	-	-	-
-	Selected flight path (all pilot selectable modes of operation)*: course/ DSTRK	-	X	-	-	-	-	-
-	Selected decision height*	-	X	-	-	-	-	-
-	EFIS display format*: pilot, first officer	-	X	-	-	-	-	-
-	Multi function/engine/ alerts display format*	-	X	-	-	-	-	-

28	GPWS/TAWS/GCAS*: selection of terrain display mode including pop-up display status, terrain alerts, both cautions and warnings, and advisories, on/off switch position	X	X	-	-	Discrete	1	-
30	Low pressure warning*: hydraulic pressure, pneumatic pressure	-	X	-	-	Discrete	2	-
-	Computer failure*	-	X	-	-	-	-	-
-	Loss of cabin pressure	-	X	-	-	-	-	-
-	TCAS/ACAS (traffic alert and collision avoidance system/airborne collision avoidance system)*	-	X	-	-	-	-	-
-	Ice detection*	-	X	-	-	-	-	-
-	Engine warning each engine vibration*	-	X	-	-	- - -		
-	Engine warning each engine over temperature*	-	X	-	-	-	-	-
-	Engine warning each engine oil pressure low*	-	X	-	-	-	-	-
-	Engine warning each engine over speed*	-	X	-	-	-	-	-
-	Wind shear warning*	-	X	-	-	-	-	-
-	Operational stall protection, stick shaker and pusher activation*	-	X	-	-	-	-	-
-	All cockpit flight control input forces*: control wheel, control column, rudder pedal cockpit input forces	-	X	-	-	-	-	-
21	Vertical deviation*: ILS glide path, MLS elevation, GNSS approach path	X	X	-	-	Signal range	1	+/- 3%
22	Horizontal deviation*: ILS localizer, MLS	X	X	-	-	Signal range	1	+/- 3%

	azimuth, GNSS approach path							
26	DME 1 and 2 distances	X	X	-	-	0 ñ 370 Km	4	As installed
-	Primary navigation system reference*: GNSS, INS, VOR/DME, MLS, Loran-C, ILS	X	X	-	-	-	-	-
-	Brakes*: left and right brake pressure, left and right brake pedal position	-	X	-	-	-	-	-
-	Date*	-	X	-	-	-	-	-
-	Event marker*	-	X	-	-	-	-	-
-	Head-up display in use*	-	X	-	-	-	-	-
-	Para visual display on*	-	X	-	-	-	-	-

## SECOND SCHEDULE

Regulation 92

### PENALTIES

REG NO.	TITLE	PART
3	General instrument and equipment requirements	B
4	General requirements	A
5	Navigational equipment	A
6	Minimum flight and navigational instruments: VFR operations	A
7	Instruments for operations requiring two pilots: VFR operations	A
8	Minimum flight navigation instruments: IFR operations	A
10	Instrument and equipment required for Category II operations	A
11	Standby altitude indicator	A
12	Instrument and equipment required for Category II operations	A
13	Approval and maintenance of instruments and equipment required for Category II operations	A

REG NO.	TITLE	PART
15	Navigation equipment for operations in minimal navigation performance specification airspace (MNPS)	B
16	Equipment for operations in reduced vertical separation minimum airspace (RVSM).	B
17	Radio equipment	A
18	Airborne collision avoidance system.	A
19	Altitude Reporting transponder.	A
20	Crew member interphone system: aeroplane.	
21	Crew member interphone system: helicopter.	A
22	Aircraft lights and instrument illumination	A
23	Engine instruments.	A
24	Machmeter and speed warning devices	B
25	Loss of pressurisation device.	B
26	Landing gear: aural warning device.	B
27	Altitude alerting system.	B
28	Ground proximity warning system.	A
29	Weather radar	A
30	Cockpit voice recorders: aeroplane.	A
31	Cockpit voice recorders: duration — aeroplane.	A
32	Cockpit voice recorders: general requirements — aeroplane	A
33	Cockpit voice recorders: helicopters.	A
34	Cockpit voice recorders: duration helicopters.	A
35	Cockpit voice recorders: performance requirements.	A
36	Cockpit voice recorders: inspectors.	A
37	Flight data recorders.	A
38	Flight data recorders for aeroplanes	A
39	Flight data recorders for helicopters	A
40	Flight data recorder duration	A

REG NO.	TITLE	PART
41	Flight data recorder: information recorded	A
42	Recording of data link communication.	A
43	Emergency equipment: all aircraft	A
44	Means for emergency evacuation.	A
45	Emergency lighting.	A
46	Exits.	A
47	Flights over designated land areas: all aircraft.	A
48	Survival equipment.	A
49	Emergency locator transmitter: aeroplanes	A
50	Emergency locator transmitter: helicopters.	A
51	Portable fire extinguishers.	A
52	Lavatory fire extinguisher.	A
53	Lavatory smoke detector.	A
54	Crash axe.	A
55	Marking of break-in points.	A
56	First-aid and emergency medical kit.	A
57	Supplemental oxygen pressurised aeroplanes	A
58	Oxygen equipment and supply requirements.	A
59	Supplemental oxygen — non-pressurised aeroplanes	A
60	Oxygen supply requirements — non-pressurised aircraft.	A
61	Protective breathing equipment.	A
62	First-aid oxygen dispensing units.	A
63	Megaphones: aeroplane	A
64	Megaphones: helicopters	A
65	Individual flotation devices.	A
66	Life rafts.	A
67	Life jackets: helicopters.	A



REG NO.	TITLE	PART
68	Flotation devices for helicopters ditching.	A
69	Seats, safety belts and shoulder harnesses	A
70	Passenger and pilot compartment doors.	A
71	Passenger information signs	A
72	Public address system.	A
73	Materials for cabin interiors	A
74	Materials for cargo and baggage compartments	A
75	Power supply, distribution and indication system.	A
76	Protective circuit fuses.	A
77	Aeroplanes in icing conditions.	A
78	Icing detection.	A
79	Pitot indication systems.	A
80	Static pressure system.	A
81	Windshield wipers.	A
82	Chart holder.	A
83	Cosmic radiation detection equipment.	A
84	Seaplanes and amphibians miscellaneous equipment	A
85	Use and retention of records	A
86	Use and retention of records	B
87	Reports of violations	B
88	Enforcement directions	A

### *Cross References*

1. The Civil Aviation (Airworthiness) Regulations, 2011.
2. The Civil Aviation (Rules of the Air and Air Traffic Control) Regulations, 2011.

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