approved by the Commissioner, except that matters that could not have come to the notice of the holder of an appropriate licence holder or an approved person, shall be entered and signed by the pilot-in-command.

(9) Any record kept for the purpose of compiling a logbook or any other technical data relating to the airworthiness of an aircraft or component shall be produced when called for in the event of any inspection or investigation.

(10) All entries made in logbooks shall furnish the information and particulars provided for in the relevant logbook.

(11) When repairs to an aircraft, aircraft engine or component or fixed or removable equipment have been required in consequence either of damage caused by a forced landing or of defects which have occasioned a forced landing or any other incident, the entry or entries made in the relevant logbook or books in respect of such repairs shall state that they have been so required and shall identify the forced landing or incident in question.

(12) The logbooks referred to in this Part shall be kept up to date and maintained in ink in a legible manner and reasonable condition and in accordance with the "Instructions for use" in the relevant logbook.

(13) In the event that required maintenance records have been lost or destroyed, alternative proof should be provided that the tasks in question have been performed.

## SUBPART 4:
## INSTRUMENTS AND EQUIPMENT

### Use and installation of instruments and equipment

**91.04.1** (1) Instruments on an aircraft which are used by a pilot shall be so arranged in such a manner that the pilot can see their indications readily from his or her station, with the minimum practicable deviation from the position and line of vision which he or she normally assumes when looking forward along the flight path.

(2) If a single instrument or item of equipment in an aircraft is required to be operated by more than one pilot, such single instrument or item of equipment shall be installed in such a manner that it can be readily seen and operated from each pilot station.

(3) An aircraft shall be equipped with means for indicating the adequacy of the power being supplied to the required flight instruments.

(4) Placards and instrument markings, containing those operating limitations required by the type certificate or by regulation to be visible to the flight crew, shall be displayed in the aircraft.

(5) An operator shall ensure that a flight does not commence unless the instruments and equipment required under the Regulations are functioning and are in a condition for safe operation of the kind being conducted, except as provided for in a minimum equipment list.

(6) The operator shall not be required to obtain approval for the –

(a) fuses referred to in regulation 91.04.2;

(b) intrinsically safe electric torches referred to in regulation 91.04.3(1)(d);

(c) accurate time piece referred to in regulations 91.04.4 and 91.04.5;

(d) first aid equipment referred to in regulation 91.04.16;

(e) megaphones referred to in regulation 91.04.24; and

(f) survival equipment referred to in regulation 91.04.29.

**Circuit protection devices**

**91.04.2** (1) No owner or operator of an aircraft in which fuses are used, shall operate the aircraft unless there are spare fuses available for use in flight equal to at least ten per cent or three, whichever is the greater, of the number of fuses of each rating required for complete circuit protection, which spare fuses shall be accessible to the flight crew during flight.

(2) If the ability to reset a circuit breaker or replace a fuse is essential to safety in flight, such circuit breaker or fuse shall be located and identified in such a manner that it can be readily reset or replaced in flight.

(3) No person shall deactivate a circuit breaker in flight other than in accordance with the aircraft flight manual referred to in regulation 91.03.2.

**Aircraft operating lights**

**91.04.3** (1) No owner or operator of an aircraft shall operate such aircraft by night unless, in addition to the equipment specified in regulation 91.04.5(1), the aircraft is equipped with –

(a) serviceable navigation lights;

(b) either –

(i) two serviceable landing lights; or

(ii) one single serviceable landing light housing with two separately energized filaments;

(c) a serviceable rotating beacon or strobe light; and

(d) a serviceable electrical torch for each required crew member, readily accessible to such crew member when seated at his or her designated station.

(2) Power supplied from the electrical system of the aircraft shall –

(a) provide adequate illumination for all instruments and equipment, used by the flight crew and essential for the safe operation of the aircraft; and

(b) be adequate to provide illumination in all passenger compartments, if any.

(3) No owner or operator of a helicopter shall operate the helicopter by night unless such helicopter is equipped with –

(a) in the case of a flight by night within 10 nautical miles, a light or lights providing adequate illumination both forward and downward to facilitate safe approaches, landings and take-offs; or

(b) in the case of a flight by night of more than 10 nautical miles, two landing lights or a single light having two separately energised filaments which are capable of providing adequate illumination both forward and downward to facilitate safe approaches, landings and take-offs.

(4) No owner or operator of a seaplane or an amphibious aircraft shall operate the seaplane or amphibious aircraft unless it is equipped with –

(a) the instruments and equipment referred to in sub-regulation (1), (2) or (3), as the case may be; and

(b) when operating on water by night, display lights to conform with the International Regulations for Prevention Collisions at Sea.

(5) The navigation lights to be displayed by aircraft by night, on the water or on the manoeuvring area of an aerodrome, shall be as prescribed in technical standard 91.06.10 of Document SA-CATS-OPS 91.

**Flight, navigation and associated equipment for aircraft operated under VFR**

**91.04.4** No owner or operator of an aircraft shall operate the aircraft in accordance with VFR, unless such aircraft is equipped with the following functioning equipment –

(a) a magnetic compass;

(b) an accurate time-piece showing the time in hours, minutes, and seconds;

(c) a sensitive pressure altimeter with a subscale setting, calibrated in hectopascal, adjustable for any barometric pressure setting likely to be encountered during flight;

(d) an airspeed indicator;

(e) if so required for use in airspace designated by the Commissioner, a pressure-altitude reporting transponder, unless authorised by the responsible air traffic service unit; and

(f) if to be operated by night, a chart holder in an easily readable position which can be illuminated.

**Flight, navigation and associated equipment for aircraft operated under IFR**

**91.04.5** (1) No owner or operator of an aircraft shall operate the aircraft in accordance with IFR, unless such aircraft is equipped with functioning navigation equipment appropriate to the route to be flown and –

(a) a magnetic compass;

(b) an accurate time-piece showing the time in hours, minutes and seconds;

(c) for large aeroplanes, two independent sensitive pressure altimeter systems with subscale settings, calibrated in hectopascal, adjustable for any barometric pressure setting likely to be encountered during flight and for all other aircraft, one sensitive pressure altimeter with subscale settings, calibrated in hectopascal, adjustable for any barometric pressure setting likely to be encountered during flight;

(d) an airspeed indicator system with heated pitot tube or equivalent means for preventing malfunctioning due to either condensation or icing;

(e) a vertical-speed indicator;

(f) a stabilised direction indicator;

(g) a turn-and-bank indicator, or a turn co-ordinator incorporating a slip indicator;

(h) an attitude indicator and for large aeroplanes for which an individual certificate of airworthiness was first issued after 1 January 1975, an emergency power supply, independent of the main electrical generating system, for the purpose of operating and illuminating, for a minimum period of 30 minutes, an attitude indicator, clearly visible to the pilot-in-command. The emergency power supply shall be automatically operative after the total failure of the main electrical generating system and clear indication shall be given on the instrument panel that the attitude indicator(s) is being operated by emergency power;

(i) a means of indication, in the cockpit or in the flight deck, the outside air temperature in degrees Celsius;

(j) a chart holder in an easily readable position which can be illuminated for operations by night;

(k) a means of measuring and displaying whether the supply of power to the gyroscopic instruments is adequate; and

(l) a pressure-altitude reporting transponder.

(2) No owner or operator shall operate in reduced vertical separation minima (RVSM) airspace unless the aircraft is equipped as specified in technical standard 91.04.34 of Document SA-CATS-OPS 91.

(3) No owner or operator of a large pressurised aeroplane shall operate the aeroplane when carrying passengers at night or under instrument meteorological conditions unless it is equipped with operative weather-detecting equipment capable of detecting thunderstorms whenever the aeroplane is being operated in areas where such conditions may be expected to exist along the route.

**Additional equipment for single-pilot operation under IMC or at night**

**91.04.6** (1) No owner or operator of an aircraft shall conduct single-pilot operations in an aircraft under instrument meteorological conditions or at night unless such aircraft has been certificated for single-pilot operations and –

(a) the single pilot flying is equipped with a headset with boom microphone or equivalent and has a transmit button positioned in such a way that it may be operated without the pilot having to remove his or her hands from the control wheel, joy stick or cyclic stick;

(b) the aircraft is equipped with a means of displaying charts that enables them to be readable in all ambient light conditions;

(c) if the aircraft is flown under instrument meteorological conditions, such aircraft has been certificated for single pilot IFR operations and is equipped with a serviceable automatic flight control system with at least altitude hold and heading mode; or

(d) in the case of a helicopter, if it is flown at night under visual meteorological conditions, such helicopter is equipped with a serviceable automatic flight control system with at least altitude and heading mode or similar equipment: Provided that this requirement shall not apply to a helicopter operated in the circuit of the aerodrome of departure or over densely populated, well-lighted areas in accordance with the provisions of regulation 91.06.32(2) but not higher than 3 500 feet above the prescribed minimum height.

(2) Nothing in this regulation shall be construed as meaning that a flight under IFR or at night for the purpose of flight instruction conducted by an appropriately rated flight instructor would be a single-pilot operation, or that such a training flight, if conducted in terms of any of the Parts 93, 121, 127 or 135 would be required to be operated by two qualified pilots.

**Mach number indicator**

**91.04.7** No owner or operator of an aircraft with speed limitations expressed in terms of Mach number shall operate the aircraft unless such aircraft is equipped with a Mach number indicator.

**Radio altimeter**

**91.04.8** No owner or operator of a helicopter shall operate the helicopter on a flight over water at a distance from land corresponding to more than 10 minutes at normal cruise speed, unless such helicopter is equipped with a radio altimeter with an audio voice warning or other aural means of notifying the flight crew when operating below a preset height and with a visual warning capable of alerting the flight crew when operating below a preset height selectable by the flight crew.

**Equipment for operations in icing conditions**

**91.04.9** (1) No owner or operator of an aircraft shall operate the aircraft in forecast or actual icing conditions unless such aircraft is certificated and equipped to operate in icing conditions.

(2) The owner or operator shall not operate the aircraft in forecast or actual icing conditions by night unless such aircraft is equipped with a means to illuminate or detect the formation of ice.

(3) The means of illumination referred to in sub-regulation (2), shall be of a type which does not cause glare or reflection which may handicap flight deck crew members in the performance of their duties.

**Flight recorders**

**91.04.10** (1) For the purposes of this regulation, any reference to the initial date of a type certificate (TC) or certificate of airworthiness (C of A) means the first time that TC or C of A was issued for that aircraft type.

(2) No owner or operator shall operate an aircraft engaged in international general aviation operations which –

(a) is an aeroplane with a maximum certificated mass (MCM) exceeding 27 000 kg for which the individual certificate of airworthiness was first issued on or after 1 January 1989 unless such aeroplane is equipped with a Type I flight data recorder (FDR) that complies with the requirements prescribed in Document SA-CATS-OPS 91;

(b) is an aeroplane with a MCM exceeding 5 700 kg for which the individual certificate of airworthiness was first issued on or after 1 January 2005 unless such aeroplane is equipped with a Type IA FDR that complies with the requirements prescribed in Document SA-CATS-OPS 91;

(c) is a helicopter with a MCM exceeding 7 000 kg, or having a passenger seating configuration of more than nineteen, for which the individual certificate of airworthiness was first issued on or after 1 January 1989 unless such helicopter is equipped with a Type IV FDR that complies with the requirements prescribed in Document SA-CATS-OPS 91; or

(d) is a helicopter with a MCM exceeding 3 180 kg for which the individual certificate of airworthiness is first issued after 1 January 2016 unless

such helicopter is equipped with a Type IVA FDR that complies with the requirements prescribed in Document SA-CATS-OPS 91.

(3) A turbine-engine aeroplane with a MCM exceeding 27 000 kg of which the prototype was type certificated by an appropriate authority after 30 September 1969, may not be operated in general aviation operations within the Republic of South Africa unless such aeroplane is equipped with a Type II FDR that complies with the requirements prescribed in Document SA-CATS-OPS 91.

(4) No owner or operator shall operate –

(a) an aeroplane with a maximum certificated mass exceeding 5 700 kilograms and to which an individual certificate of airworthiness was first issued on or after 1 January 1987;

(b) a turbine engine aeroplane to which an individual certificate of airworthiness was first issued before 1 January 1987 and is of a type for which the prototype was certified by an appropriate authority after 30 September 1969, which is an aeroplane with a maximum certificated mass exceeding 27 000 kilograms; or

(c) a helicopter with a maximum certificated mass exceeding 7 000 kilograms,

unless such aeroplane or helicopter is equipped with a cockpit voice recorder (CVR) which complies with the requirements prescribed in Document SA-CATS-OPS 91.

(5) No owner or operator shall operate a turbine engine aeroplane for which a type certificate was first issued on or after 1 January 2016 and required to be operated by more than one pilot unless such aeroplane is equipped with either a CVR or a cockpit audio recording system (CARS).

(6) No owner or operator shall operate an aircraft for which the individual certificate of airworthiness is first issued on or after 1 January 2016 and which is required to be fitted with a CVR or for aeroplanes, a CARS, unless the CVR or CARS, as applicable, is provided with an independent power source that complies with the requirements prescribed in Document SA-CATS-OPS 91.

(7) No owner or operator shall operate an aircraft for which the individual certificate of airworthiness was first issued on or after 1 January 2016, which utilises any data link communications and is required to carry a CVR, unless all data link communications messages to and from the aircraft are recorded on a data link recorder (DLR) or other flight recorder. The minimum recording duration shall be equal to the duration of the CVR and shall be correlated to the recorded cockpit audio.

(8) No owner or operator shall operate an aircraft which is modified on or after 1 January 2016 to install and utilise any data link communications and is required to carry a CVR, unless the data link communications messages are recorded on a DLR or other flight recorder.

(9) The FDR required by this regulation shall be capable of retaining the information recorded during at least –

(a) in the case of an aeroplane, the last 25 hours of its operation; or

(b) in the case of a helicopter, the last 10 hours of its operation.

(10) The CVR or CARS required by this regulation shall be capable of retaining information recorded during at least the last 30 minutes of the aircraft's operation until 1 January 2016, and thereafter during at least the last 2 hours of its operation;

(11) No owner or operator shall use the following mediums to record any information or data required to be recorded by this regulation –

(a) engraving metal foil, photographic film and analogue using frequency modulation (FM) in FDRs;

(b) from 1 January 2016, magnetic tape in FDRs and magnetic tape and wire in CVRs.

(12) The flight recorder shall not be switched off during flight.

(13) Each flight recorder installed in an aircraft shall be located and installed in such a manner that maximum practicable protection is provided, in order that, in the event of an accident or incident, the recorded data may be recovered in a preserved and intelligible state. Flight recorders shall meet the installation, crashworthiness and fire protection specifications prescribed in Document SA-CATS-OPS 91.

(14) The owner or operator of the aircraft shall ensure that retrieving the recorded data from the storage medium will be readily possible.

(15) The pilot-in-command, owner or operator shall ensure, to the extent possible, in the event the aircraft becomes involved in an accident or incident, that –

(a) all related flight recorder records, and if possible the associated flight recorders, are preserved and retained in safe custody pending their disposition to the accident or incident investigation team;

(b) the flight recorders are deactivated upon completion of flight time following an accident or incident; and

(c) the flight recorders are not reactivated before their disposition to the accident or incident investigation team.

(16) An owner or operator shall ensure that the quality assurance programme of the organisation responsible for the maintenance of his or her aircraft includes verification of the measurement range, recording interval and accuracy of parameters on installed flight recorder equipment.

(17) An owner or operator shall ensure that documentation concerning parameter allocation, conversion equations, periodic calibration and other serviceability/maintenance information is maintained by the organisation responsible for the maintenance of his or her aircraft. The documentation shall be sufficient to ensure that accident investigation authorities have the necessary information to read out the data in engineering units.

(18) The owner or operator of the aircraft shall –

(a) conduct daily and annual inspections of each flight recorder as specified in Document SA-CATS-OPS 91; and

(b) record and retain the results of such check for a period of five years calculated from the date of such check.

(19) The CVR and FDR referred to in this regulation may be combined.

(20) An aircraft may commence a flight with the FDR inoperative: Provided that –

(a) for aircraft with an approved Minimum Equipment List (MEL), the aircraft is operated in accordance with that MEL and such MEL incorporates the provisions of paragraph (b) below; or

(b) for aircraft without an approved MEL –

(i) the aircraft shall not depart from an aerodrome where repairs or replacements to such flight data recorder can be made;

(ii) the aircraft does not exceed six further consecutive flights with the flight data recorder unserviceable;

(iii) not more than 48 hours have elapsed since the flight data recorder became unserviceable; and

(iv) any cockpit voice recorder is combined with the flight data recorder.

(21) An aircraft may commence a flight with the CVR or CARS inoperative: Provided that –

(a) for aircraft with an approved Minimum Equipment List (MEL), the aircraft is operated in accordance with such MEL; or

(b) for aircraft without an approved MEL –

(i) the aircraft shall not take-off from an aerodrome where repairs or replacements to such cockpit voice recorder can be made;

(ii) the aircraft does not exceed six further consecutive flights with the cockpit voice recorder unserviceable;

(iii) not more than 48 hours have elapsed since the cockpit voice recorder became unserviceable; and

(iv) any flight data recorder required to be carried, is operative, unless the flight data recorder is combined with a cockpit voice recorder.

**91.04.11 Deleted**

**91.04.12 Deleted**

**91.04.13 Deleted**

**Seats, seat safety belts, harnesses and child restraint devices**

**91.04.14** (1) No owner or operator of an aircraft shall operate the aircraft unless such aircraft is equipped, as applicable, with –

(a) a seat or berth for each person who is aged two years or more;

(b) a safety belt with or without a diagonal shoulder strap, or a safety harness, for use in each passenger seat for each passenger who is aged two or more;

(c) a restraining belt for use in each passenger berth;

(d) a child restraint device for each passenger who is less than two years of age;

(e) a safety harness for each flight crew member seat, incorporating a device which will automatically restrain the occupant's torso in the event of rapid deceleration; and

(f) a safety harness for each cabin crew member seat:

Provided that a safety belt with one diagonal shoulder strap is permitted if the fitting of a safety harness is not reasonably practical.

(2) Seats for cabin crew members shall, where possible, be located near floor-level emergency exits and additional cabin crew member seats required shall be located such that a cabin crew member may best be able to assist passengers in the event of an emergency evacuation. Seats shall be forward or rearward facing within 15° of the longitudinal axis of the aircraft.

(3) If the pilot-in-command cannot see all the passenger seats in the aircraft from his or her own seat, a means of indicating to all passengers and cabin crew members that seat belts should be fastened, shall be installed.

(4) All safety harnesses and safety belts shall have a single point release.

**Stowage of articles, baggage and cargo**

**91.04.15** No owner or operator of an aircraft shall operate the aircraft unless all articles, baggage and cargo carried on board, except those items in use by either the flight crew or by passengers, if such use is not prohibited by the pilot-in-command in the interest of the safety of the aircraft or its occupants, are placed –

(a) in a manner which prevents movement likely to cause injury or damage and does not obstruct aisles and exits; or

(b) in stowages designed to prevent movement likely to cause injury or damage.

**First aid and universal precaution kits**

**91.04.16** (1) No owner or operator of an aircraft used in general aviation operations shall operate the aircraft unless such aircraft is equipped with the first aid kit consisting of the medical supplies as prescribed in Document SA-CATS-OPS 91.

(2) The owner or operator shall carry out periodical inspections of the first aid kit specified in sub-regulation (1) to ensure that, as far as practicable, the contents thereof are in a condition necessary for their intended use.

(3) The contents of the first aid kit specified in sub-regulation (1) shall be replenished at regular intervals, in accordance with instructions contained on their labels, or as circumstances require.

(4) The first aid kit specified in sub-regulation (1) shall be readily accessible to the crew or passengers.

(5) No owner or operator of an aircraft used in general aviation operations for which the maximum certificated passenger seating is 20 or more and on which is carried a cabin attendant shall operate the aircraft unless such aircraft is equipped with universal precaution kits specified in Document SA-CATS-OPS 91.

(6) The contents of the universal precaution kits specified in sub-regulation (5) shall be as prescribed in Document SA-CATS-OPS 91.

**First aid oxygen**

**91.04.17** (1) No owner or operator of an aircraft in respect of which the carriage of a cabin crew member is required in terms of this Part, shall operate the aircraft unless such aircraft is equipped with the appropriate supply of first aid oxygen prescribed in Document SA-CATS-OPS 91.

(2) The conditions, rules, requirements, procedures or standards for first aid oxygen shall be as prescribed in Document SA-CATS-OPS 91.

**Supplemental oxygen in the case of pressurised aircraft**

**91.04.18** (1) No owner or operator of a pressurised aircraft shall operate the aircraft unless such aircraft is equipped with the supplemental oxygen as prescribed in Document SA-CATS-OPS 91 and such oxygen is used continuously whenever the circumstances prevail for which its supply has been prescribed in this regulation.

(2) No owner or operator of a pressurised aircraft shall operate the aircraft above 25 000 feet unless all flight crew members have available at their flight duty station a quick-donning type of oxygen mask which will readily supply oxygen upon demand.

**Supplemental oxygen in the case of non-pressurised aircraft**

**91.04.19** (1) No owner or operator of a non-pressurised aircraft shall operate the aircraft at altitudes between 10 000 feet and 12 000 feet for longer than 120 minutes intended flight time, or above 12 000 feet, unless such aircraft is equipped with the supplemental oxygen as prescribed in Document SA-CATS-OPS 91 and such oxygen is used continuously whenever these circumstances prevail.

(2) The conditions, rules, requirements, procedures or standards for supplemental oxygen shall be as prescribed in Document SA-CATS-OPS 91.

**Flight crew protective breathing equipment**

**91.04.20** (1) No owner or operator of a pressurised aeroplane shall operate the aeroplane or an unpressurised aeroplane with a maximum certificated mass exceeding 5 700 kilograms and a maximum approved passenger seating configuration of more than 19 seats, at altitudes above 12 000 feet, unless such aeroplane –

(a) is equipped with equipment to protect the eyes, nose and mouth of each flight crew member while on flight deck duty and to provide oxygen for a period of at least 15 minutes;

(b) has sufficient portable protective breathing equipment to protect the eyes, nose and mouth of all cabin crew members required to be carried in terms of this Part and to provide breathing gas for a period of at least 15 minutes; and

(c) if no cabin crew member is carried, is equipped with portable protective breathing equipment to protect the eyes, nose and mouth of one member of the flight crew and to provide breathing gas for a period of at least 15 minutes.

(2) The supply for protective breathing equipment may be provided by supplemental oxygen referred to in regulation 91.04.18 or 91.04.19.

(3) Protective breathing equipment intended for use by flight deck crew, shall be conveniently located on the flight deck and be easily accessible for immediate use by each required flight deck crew member at his or her assigned duty station.

(4) Protective breathing equipment intended for use by cabin crew shall be installed adjacent to each required cabin crew member duty station.

(5) Additional, easily accessible portable protective breathing equipment shall be provided and located at, or adjacent to, the hand fire extinguishers referred to in regulation 91.04.21: Provided 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 such compartment.

(6) Protective breathing equipment, while in use, shall not prevent communication, where required.

**Hand-held fire extinguishers**

**91.04.21** No owner or operator of an aircraft shall operate the aircraft unless such aircraft is equipped with the appropriate hand fire extinguishers as prescribed in Document SA-CATS-OPS 91.

**Crash axes and crowbars**

**91.04.22** (1) No owner or operator of an aeroplane with a maximum certificated mass exceeding 5 700 kilograms or a maximum approved passenger seating configuration of more than nine seats, shall operate the aeroplane unless such aeroplane is equipped with at least one crash axe or crowbar located on the flight deck.

(2) If the maximum approved passenger seating configuration is more than 200 seats, an additional crowbar shall be carried in the aeroplane and located out of sight in or near the most rearward galley area.

**Marking of break-in points**

**91.04.23** The owner or operator of an aircraft shall ensure that, if areas of the fuselage suitable for break-in by rescue crews in emergency, are marked on the aircraft, such areas shall be marked in accordance with the requirements as prescribed in Part 47.

**Megaphones**

**91.04.24** No owner or operator of an aircraft with a maximum approved passenger seating configuration of more than 60 seats and which is carrying one or more passengers, shall operate the aircraft unless such aircraft is equipped with the appropriate portable battery-powered megaphones as prescribed in Document SA-CATS-OPS 91.

**Emergency lighting**

**91.04.25** No owner or operator shall operate the aircraft unless such aircraft is equipped with the appropriate emergency lighting system as prescribed in Document SA-CATS-OPS 91.

**Emergency locator transmitters**

**91.04.26** (1) Except as provided in sub-regulation (3), no owner or operator of an aircraft specified in Document SA-CATS-OPS 91 shall operate such aircraft unless it is equipped with one or more approved emergency locator transmitters (ELTs).

(2) The number and type of emergency locator transmitters, the manner in which these shall be carried, the specifications to which they shall adhere, the frequencies on which they shall be able to transmit and the manner in which they are to be maintained shall be as prescribed in Document SA-CATS-OPS 91.

(3) The following aircraft are exempted from the requirement prescribed in sub-regulation (1) –

(a) aircraft engaged in flights remaining within a radius of 50 nautical miles from their point of departure;

(b) aircraft engaged in the aerial application of chemicals or other substances for agricultural purposes, and on flights incidental thereto;

(c) a new aircraft on a flight for a purpose associated with its manufacture and preparation for delivery, but not when on its delivery flight;

(d) an aircraft flown for the purpose of moving it to a place to have an approved ELT fitted, or a fitted ELT repaired, removed or overhauled: Provided that only the required flight crew members may be carried on board;

(e) an aircraft of which the ELT has been temporarily removed for inspection, repair, modification or replacement: Provided the necessary logbook entries have been made, a placard stating "ELT not installed or carried" has been installed in a position easily visible to the flight crew, and a period of 90 days is not exceeded;

(f) aircraft certified for research and development purposes;

(g) aircraft used for showing compliance with regulations, or in crew training, air racing, air display or market surveys;

(h) aircraft with an approved seating configuration of not more than one person;

(i) aircraft exempted in terms of Part 94; and

(j) any aircraft on a flight or a series of flights for which an exemption in writing has been granted by the Commissioner.

(4) The Commissioner shall maintain a register of all aircraft equipped with 406 MHz ELTs, which shall contain the following particulars –

(a) the nationality and registration marks of the aircraft;

(b) particulars of the manufacturer's designation and serial number of the aircraft;

(c) the full name and contact details of the registered owner of the aircraft;

(d) the make and model number/s of the ELT/s;

(e) the 15-digit Unique Identification Number (UIN) provided by the manufacturer of the ELT, or the aircraft's Mode S transponder code; and

(f) the name/s and contact details of the person/s who know/s the aircraft's itinerary and who may be contacted 24 hours a day.

(5) On the payment of the appropriate fee as prescribed in Part 187, an excerpt of the ELT register shall be furnished by the Commissioner to any person who requests such an excerpt.

(6) For the registration, deregistration and changing of an ELT, the fee as prescribed in Part 187 is payable.

**Life jackets and other flotation devices**

**91.04.27** (1) No owner or operator of –

(a) an aeroplane other than an aeroplane referred to in paragraph (b), shall operate the aeroplane –

(i) when flying over water and beyond gliding distance of land in the case of the aeroplane not capable of continuing the flight to an aerodrome with the critical power-unit becoming inoperative at any point along the route or any planned diversion;

(ii) when taking off or landing at an aerodrome where the take-off or approach path is so disposed over water that in the event of an incident, there would be a likelihood of a ditching,

unless such aeroplane is equipped with a flotation device or a life jacket containing a survivor locator light, for each person on board, stowed in a position easily accessible, with safety belt fastened, from the seat or berth of the person for whose use it is provided, and an individual infant flotation device, containing a locator survival light for use by each infant on board;

(b) a seaplane or an amphibious aeroplane shall operate the seaplane or amphibious aeroplane unless such seaplane or amphibious aeroplane is equipped with –

(i) a flotation device or a life jacket containing a survivor locator light, for each person on board, stowed in a position easily accessible, with safety belt fastened, from the seat or berth of the person for whose use it is provided, and an individual infant flotation device, containing a survivor locator light, for use by each infant on board; and

(ii) life jackets, other than the life jackets referred to in subparagraph (i), for 20 per cent of the number of persons on board such seaplane or amphibious aeroplane, located in the passenger compartment near the emergency exits and readily accessible;

(c) a helicopter shall operate the helicopter over water beyond autorotative distance from land, other than only for take-off and initial climb, or final approach and landing, unless –

(i) each person on board is wearing a life jacket containing a survivor locator light; and

(ii) an individual infant flotation device containing a locator survival light for use by each infant on board, stowed in a position easily accessible for the person in which care the infant is; and

(d) a helicopter when taking off or landing at an aerodrome where the take-off or approach path is so disposed over water that in the event of an incident, there would be a likelihood of a ditching, unless such helicopter is equipped with a life jacket containing a survivor locator light, for each person on board, stowed in a position easily accessible, with safety belt fastened, from the seat of the person for whose use it is provided, and an individual infant flotation device, containing a locator survival light for use by each infant on board.

(2) No owner or operator shall operate the following helicopters over water unless such helicopter is certificated as an amphibian helicopter or for ditching or is equipped with permanent or rapidly deployable emergency flotation equipment =

(a) a performance Class 3 helicopter operating below a height that would permit the helicopter to complete an autorotation to a landing on land in the event of an engine failure;

(b) a performance Class 1 or 2 helicopter operating in a hostile environment more than 10 minutes from land that would be unable to maintain flight to a suitable landing site in the event of an engine failure; or

(c) a performance Class 1 helicopter operating in a non-hostile environment at a distance from land equivalent to 30 minutes at normal cruising speed or 50 nautical miles, whichever is the lesser:

Provided that in the case of aerial spraying operations over water, the owner or operator may apply to the Commissioner for an exemption in terms of Part 11.

(3) Sea state shall be an integral part of ditching information.

**Life rafts and survival radio equipment for extended over-water flights**

**91.04.28** No owner or operator of an aircraft shall operate the aircraft over water at a distance equivalent to 30 minutes at normal cruising speed or 50 nautical miles, whichever is the lesser, away from land unless such aircraft –

(a) is equipped with life rafts sufficient to accommodate all persons on board; and

(b) is equipped with the survival equipment and complies with the provisions as prescribed in Document SA-CATS-OPS 91.

**Survival equipment**

**91.04.29** No owner or operator of an aircraft shall operate an aircraft over areas where search and rescue would be especially difficult, unless such aircraft is equipped with the appropriate survival equipment and complies with the provisions as prescribed in Document SA-CATS-OPS 91.

**Seaplanes, amphibious aeroplanes and amphibious helicopters**

**91.04.30** No owner or operator of a seaplane, amphibious aeroplane or amphibious helicopter shall operate the seaplane, amphibious aeroplane or amphibious helicopter on water, unless it is equipped with –

(a) a sea anchor and other equipment necessary to facilitate mooring, anchoring or manoeuvring such seaplane, amphibious aeroplane or amphibious helicopter on water, appropriate to its size, mass and handling characteristics; and

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

**Airborne Collision Avoidance System**

**91.04.31** (1) Except as otherwise provided for in Part 121 and Part 135, no owner or operator may operate a turbine-engine aeroplane of a maximum certificated take-off mass in excess of 15 000 kg or authorized to carry more than 30 passengers, for which the individual certificate of airworthiness was first issued after 1 January 2007, unless such aeroplane is equipped with an airborne collision avoidance system (ACAS) that meets the specifications prescribed in Document SA-CATS-OPS 91.

(2) No owner or operator of an aeroplane required to be equipped with ACAS shall operate such aeroplane unless he or she has completed the training and checking as specified in Document SA-CATS-OPS 91.

(3) ACAS training shall be provided through an approved training programme.

(4) Whenever an aircraft is equipped with an airborne collision avoidance system, such system shall –

(a) meet the specifications in, and function in accordance with, the relevant provisions of Document SA-CATS-OPS 91; and

(b) when serviceable, be activated at all times during flight in all airspace, including oceanic, international, foreign and domestic airspace, even if in terms of these regulations the carriage of ACAS equipment is not compulsory for that particular type of aircraft or the type of operation.

(5) Whenever an ACAS becomes unserviceable during flight when operation of ACAS is mandatory, the pilot-in-command of that aeroplane shall inform the responsible air traffic service unit as soon as is practical.

(6) No pilot may act as pilot-in-command of a South African-registered aircraft during any period while an airborne collision avoidance system is activated unless such pilot is ACAS-current.

(7) When a flight crew receives a traffic avoidance instruction from an air traffic service unit (ATSU) that is in conflict with the resolution advisory message issued by the aircraft's approved ACAS, the ACAS resolution advisory takes priority over the ATSU instruction.

(8) Document SA-CATS-OPS 91 contains instructions in respect of ACAS operational use and event reporting.

(9) For the purpose of this regulation, an ACAS-current pilot means a pilot who, –

(a) within the immediately preceding 12 months, completed initial ACAS II training;

(b) within the immediately preceding two (2) years, completed initial ACAS training and subsequently completed ACAS II renewal training more than 9 months and less than 12 months after the earlier training; or

(c) within the immediately preceding 12 months, completed a session of ACAS II cyclic training.

**Cabin pressurisation**

**91.04.32** No owner or operator shall operate a pressurized aeroplane, for which the individual certificate of airworthiness was first issued on or after 1 January 1990, above 25 000 feet unless such aeroplane is equipped with a device to provide positive warning to the flight crew of any dangerous loss of pressurization.

**Terrain awareness and warning systems**

**91.04.33** (1) From 1 January 2012, the owner or operator of a turbine-engine aeroplane of a maximum certificated take-off mass in excess of 5 700 kg or authorized to carry more than nine passengers operating according to the instrument flight rules shall be equipped with a terrain awareness and warning systems (TAWS) which has a predictive terrain avoidance function that meets the requirements specified in Document SA-CATS-OPS 91.

(2) Except as provided in sub-regulation (3), each terrain awareness and warning system TAWS required by sub-regulation (1) shall be functioning properly prior to flight.

(3) An aircraft may be operated without a functioning TAWS –

(a) as provided for in an approved minimum equipment list (MEL); or

(b) if repairs cannot be effected at the aerodrome last operated into, the aircraft is flown by the most direct routing to the nearest owner's or operator's facility where the repairs can be made.

(4) A TAWS shall automatically provide a timely and distinctive warning to the flight crew when the aeroplane is in potentially hazardous proximity to the earth's surface.

(5) A TAWS shall provide, as a minimum, warnings of at least the following circumstances –

(a) excessive descent rate;

(b) excessive altitude loss after take-off or go-around; and

(c) unsafe terrain clearance.

(6) A TAWS installed in turbine-engine aeroplanes of a maximum certificated take-off mass in excess of 5 700 kg or authorized to carry more than nine passengers for which the individual certificate of airworthiness was first issued after 1 January 2011 shall provide, as a minimum, warnings of at least the following circumstances –

(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 the landing configuration as follows =

(i) gear not locked down; or

(ii) flaps not in a landing position; and

(e) excessive descent below the instrument glide path.

**Reduced Vertical Separation Minima operations**

**91.04.34** (1) Except as provided in an air traffic services unit clearance to climb or descend through reduced vertical separation minima (RVSM) airspace, no pilot-in-command shall enter RVSM airspace unless –

(a) for such aircraft a valid RVSM approval certificate has been issued by the Commissioner;

(b) the prescribed minimum equipment is serviceable; and

(c) the flight crew has completed and passed the RVSM training prescribed by the regulation.

(2) The requirements for the issue of an RVSM approval certificate, including minimum equipment, maintenance and crew training requirements, are those as specified in Document SA-CATS-OPS 91.

(3) An application for an RVSM approval certificate for a South African registered aircraft shall be made to the Commissioner in the format prescribed in Document SA-CATS-OPS 91 and shall be accompanied by –

(a) in the case of a commercial air transport operator, two copies of the proposed relevant amendments to –

(i) the operations manual;

(ii) the aircraft maintenance schedule; and

(iii) the maintenance control manual; and

(b) in the case of a general aviation operator, the aircraft maintenance schedule.

(4) In considering an application, contemplated in sub-regulation (3), the Commissioner may conduct the investigation deemed necessary to ascertain that the applicant has complied with the requirements prescribed in Document SA-CATS-OPS 91 for RVSM operations.

(5) If the Commissioner is not so satisfied, he or she shall notify the applicant thereof, stating the reasons in the notification, and grant the applicant the opportunity to rectify any shortcoming within the period determined by the Commissioner, after which period the Commissioner shall grant or refuse the application concerned.

(6) If the Commissioner is satisfied that the applicant has complied with the relevant requirements, the RVSM approval certificate shall be issued in the format as prescribed in Document SA-CATS-OPS 91.

(7) The Commissioner shall maintain a register of all RVSM approval certificates issued in terms of this regulation and –

(a) the register shall contain the following particulars –

(i) the make, model and registration marks of the aircraft;

(ii) the full name of the owner of the aircraft or, if a licensed air operator, the name of the licence holder and the air service licence number;

(iii) the postal address of the certificate holder; and

(iv) the date on which the certificate was issued;

(b) the particulars, referred to in paragraph (a), shall be recorded in the register within 30 days from the date on which the certificate is issued by the Commissioner;

(c) the register shall be kept in a safe place at the office of the Commissioner or location he or she may approve; and

(d) a copy of the register may be furnished by the Commissioner, on payment of the appropriate fee as prescribed in Part 187, to any person who requests the copy.

(8) If a RVSM approval certificate is lost, stolen, damaged or destroyed, the holder thereof, or an aircraft maintenance organisation approved under Part 145 and responsible for the servicing and maintenance of the aircraft, may apply to the Commissioner for the issue of a duplicate of the RVSM approval certificate and –

(a) an application, referred to in this sub-regulation, shall –

(i) be made in the appropriate form as prescribed in Document SA-CATS-OPS 91; and

(ii) be accompanied by –

(aa) the data package referred to in Section 6 of TS 91.07.31 in Document SA-CATS-OPS 91; and

(bb) the appropriate fee as prescribed in Part 187; and

(b) a duplicate of the original RVSM approval certificate shall be reissued.

(9) The holder of an RVSM approval certificate endorsed for operations within RVSM airspace shall –

(a) report within 24 hours to the Commissioner any occurrence involving poor height-keeping in an RVSM environment as specified in Document SA-CATS-OPS 91; and

(b) make an effective, timely response to each height-keeping error.

## SUBPART 5:
## COMMUNICATION AND NAVIGATION

### Communication equipment

**91.05.1** (1) Except with prior written approval by the Commissioner, no owner or operator of an aircraft shall operate or allow the aircraft to be operated in designated airspace or under instrument flight rules unless such aircraft is equipped with radio communication equipment capable of –

(a) two-way communication at any time during the flight on such frequencies as may be prescribed by the appropriate authority; and

(b) receiving meteorological information at any time during flight.

(2) The radio communication equipment referred to in sub-regulation (1) shall be capable of providing for communication on the aeronautical emergency frequency 121.5 MHz.

(3) All flight crew members involved in large aeroplane operations and who are required to be on flight deck duty shall communicate through boom or throat microphones below the transition level/altitude.

(4) The radio communication equipment in the aircraft shall be installed and be of a type as prescribed in Document SA-CATS-OPS 91.

(5) The provisions of this regulation shall not be applicable to the owners or operators of a parachute, a hang-glider or a paraglider.

**Navigation equipment**

**91.05.2** (1) No owner or operator of an aircraft shall operate the aircraft unless such aircraft is equipped with navigation equipment enabling it to proceed in accordance with its flight plan, including approaches at the planned destination or any alternate aerodromes, and the appropriate air traffic service requirements: Provided that the provisions of this regulation shall not apply to flights operated in accordance with VFR, if such flights can be accomplished by visual reference to landmarks. Such landmarks for helicopter operations shall be no further apart than 60 nautical miles.

(2) The aircraft shall be equipped as prescribed in Document SA-CATS-OPS 91 and with sufficient navigation equipment to ensure that in the event of the failure of one item of equipment at any stage of the flight, the remaining equipment enables such aircraft to proceed with such flight and installed such that the failure of any single unit required for either navigation or communications purposes or both will not result in the failure of another unit required for navigation or communications purposes.

(3) No person shall operate an aircraft in airspace where minimum navigation performance or performance-based navigation specifications apply, unless the aircraft is equipped with navigation equipment that meets the performance specifications as prescribed in Document SA-CATS-OPS 91.

(4) In an aircraft required to be operated by two pilots, the navigation equipment referred to in sub-regulation (3) shall be visible and usable by each pilot seated at his or her duty station.

(5) No person may use inertial navigation or reference systems for navigation unless approved under Parts 93, 121, 127 or 135, as applicable.

(6) No person may operate an aircraft under IFR using any system required for navigation unless such system is maintained, checked and inspected under an approved procedure.

(7) An owner or operator shall not use a navigation system based on electronic data unless –

(a) procedures are implemented that ensure the timely distribution and insertion of current and unaltered electronic navigation data to all aircraft that require it;

(b) the source of the data is –

(i) the manufacturer of the aircraft;

(ii) the manufacturer of the navigation system; or

(ii) a supplier satisfactory to the aircraft or navigation system manufacturer or the Commissioner; and

(c) procedures are implemented to verify the accuracy and validity of the data received.

**Use of global navigation satellite system**

**91.05.3** (1) No owner or operator of an aircraft shall operate an aircraft using a global navigation satellite system (GNSS) as a means of navigation unless –

(a) the GNSS equipment meets the airworthiness criteria prescribed in Document SA-CATS-OPS 91;

(b) all flight crew members required by regulation or the type certificate of the aircraft being flown have received the training and checking specified in Document SA-CATS-OPS 91; and

(c) the procedures specified in Document SA-CATS-OPS 91 are followed.

(2) In order to fly published GNSS arrivals, departures and approach procedures; the pilot-in-command shall ensure that –

(a) the air navigation routes to be flown are contained in the database of the aircraft; and

(b) the information contained in the aircraft database is current.

(3) The pilot-in-command shall fly the instrument departure of a flight management system (FMS) equipped aircraft without the capability of manually setting the course direction indicator (CDI), with the aid of a flight director.

(4) Helicopter-only GNSS departure procedures shall be flown at 70 knots or less.

(5) Upon clearance for the approach by the appropriate air traffic service unit (ATSU), the pilot shall select the appropriate aerodrome, the runway approach procedure and the initial approach fix on the GNSS receiver to determine the validity of the receiver autonomous integrity monitoring (RAIM) for such approach.

**Operational criteria for the use of RNAV/BARO VNAV systems**

**91.05.4** (1) An owner or operator may not conduct area navigation/barometric (RNAV/BARO) vertical navigation (VNAV) operations unless approved by the Commissioner in terms of the operational provisions specified in Document SA-CATS-OPS 91.

(2) An aircraft equipped with a RNAV/BARO VNAV system approved by the Commissioner for the appropriate level of RNAV/BARO VNAV operations, may be used to conduct RNAV/BARO VNAV approaches if –

(a) the RNAV/BARO VNAV equipment is serviceable;

(b) the aircraft and aircraft systems are appropriately certified for the intended RNAV/BARO VNAV approach operations and the aircraft is equipped with an integrated Lateral Navigation (LNAV) system with an accurate source of barometric altitude; and

(c) the VNAV altitudes and all relevant procedural and navigational information are retrieved from a current navigation database whose integrity is supported by approved appropriate quality assurance measures.

## SUBPART 6:
## RULES OF THE AIR

### Division One: Flight Rules

**Landing on roads**

**91.06.1** No pilot shall use a public road as a place of landing or take-off in an aircraft, except –

(a) in the case of an emergency involving the safety of the aircraft or its occupants;

(b) for the purpose of saving human lives; or

(c) when involved in civil defence or law-enforcement operations: Provided that at all times reasonable care is taken for the safety of others with due regard to the prevailing circumstances.

**Dropping objects, spraying or dusting**

**91.06.2** Except in an emergency or unless granted special permission by the Commissioner or approved by an air traffic service unit (ATSU), no article shall be dropped from an aircraft in flight other than –

(a) fine sand or clean water used as ballast; or

(b) chemical substances for the purpose of spraying, dusting or cloud seeding.

**Picking up objects**

**91.06.3** The pilot-in-command of an aircraft in flight shall not permit objects to be picked up except with the prior written approval of the Commissioner.

**Towing**

**91.06.4** The pilot-in-command of an aircraft in flight shall not permit anything to be towed by the aircraft except with the prior written approval of the Commissioner.

**Operation of vehicle- or vessel-towed aircraft**

**91.06.5** (1) Except with the prior written approval of the Commissioner and subject to such conditions as he or she may impose, an aircraft which is intended, for purposes of flight, to be towed by a vehicle or vessel traveling on the surface or to be moored on the surface, shall not –

(a) be flown higher than 150 feet above the surface on which the towing vehicle or vessel is travelling or to which such aircraft is moored;

(b) be flown closer than five nautical miles from the boundary of an aerodrome; or

(c) take-off from, land on or be flown above any public road.

(2) The provisions of sub-regulation (1)(a) and (b) shall not apply to the winching or towing of gliders at the aerodrome of departure.

**Proximity and formation flights**

**91.06.6** (1) No pilot shall operate an aircraft in formation flight while carrying passengers for commercial purposes or, except as provided in sub-regulation (2), –

(a) in such proximity to other aircraft so as to create a collision hazard;

(b) in formation flight, except by arrangement with the pilot-in-command of each aircraft in the formation; or

(2) Formation flight in controlled airspace may be approved by an air traffic service unit: Provided –

(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 pilots-in-command 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 and

during join-up and breakaway; and

(c) a distance not exceeding 1 km (0.5 NM) laterally and longitudinally and 30 m (100 ft) vertically from the flight leader shall be maintained by each aircraft.

(3) Formation flight for display purposes may be approved by the Commissioner.

**Right of way**

**91.06.7** (1) An aircraft which has the right-of-way, shall maintain its heading and speed, but nothing in these provisions shall relieve the pilot-in-command of an aircraft from the responsibility of taking such action as will best avert collision, including collision avoidance manoeuvres based on resolution advisories provided by Airborne Collision Avoidance System equipment.

(2) An aircraft which is obliged, by the provisions of this Subpart, to keep out of the way of another aircraft, shall avoid passing over or under the other aircraft, or crossing ahead of such aircraft, unless passing well clear, taking into account the effects of wake turbulence.

(3) When two aircraft are approaching head-on or approximately so and there is danger of collision, each aircraft shall alter its heading to the right.

(4) When two aircraft are converging at approximately the same level, the aircraft which has the other aircraft on its right, shall give way, except in the following circumstances –

(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 –

(i) seen to be towing other aircraft or objects;

(ii) carrying an underslung load or are engaged in winching operations; and

(iii) being towed or tethered.

(5) An aircraft which 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 overtaken 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 its obligation until such aircraft is entirely past and clear: Provided that where a right-hand circuit is being followed at an aerodrome, the overtaking aircraft shall alter its heading to the left.

(6) An aircraft in flight or operating on the ground or water, shall give way to other aircraft landing or on final approach to land.

(7) When two or more heavier-than-air aircraft are approaching an aerodrome for the purpose of landing, the aircraft at the higher level shall give way to the aircraft at the lower level, but –

(a) the latter aircraft shall not take advantage of this provision to cut in front of another aircraft which is on final approach to land, or to overtake such aircraft; and

(b) power-driven heavier-than-air aircraft shall give way to gliders in all circumstances.

(8) An aircraft about to take-off, shall not attempt to do so until there is no apparent risk of collision with other aircraft.

(9) An aircraft which is aware that another aircraft is compelled to land, shall give way to such aircraft.

(10) For the purposes of this regulation, an overtaking aircraft is an aircraft which approaches another aircraft from the rear on a line forming an angle of less than 70 degrees with the plane of symmetry of the latter aircraft, and will therefore be in such position with reference to the other aircraft, that by night it should be unable to see either of the other aircraft's wingtip navigation lights.

**Following line features**

**91.06.8** An aircraft flying at or below 1 500 feet above the surface and following a power line, a road, a railway line, a canal, a coastline or any other line feature within one nautical mile of such line feature, shall fly to the right of such line, road, railway line, canal, coastline or other line feature, except when the aircraft is instructed to do otherwise by an air traffic service unit.

**Aircraft speed**

**91.06.9** (1) Unless otherwise authorised by the Commissioner, no person shall, outside controlled airspace and below flight level 100, fly an aircraft at an indicated air speed of more than 250 knots.

(2) Unless otherwise authorised or required by an air traffic service unit, no person shall fly an aircraft within a control zone or an aerodrome traffic zone at an indicated air speed of more than –

(a) 160 knots, in the case of a reciprocating-engine aircraft; or

(b) 200 knots, in the case of a turbine-powered aircraft:

Provided that if the minimum safe indicated air speed for a particular flight is greater than the maximum indicated air speed prescribed in this regulation, the aircraft may be flown at the minimum safe indicated air speed.

**Lights to be displayed by aircraft**

**91.06.10** (1) Except as provided by sub-regulation (4) and unless the aircraft was initially type-certificated without such lights, all aircraft shall display –

(a) while operating in flight during the day and at all times at night, anti-collision lights intended to attract attention to the aircraft;

(b) while operating during night, navigation lights intended to indicate the relative path of the aircraft to an observer;

(c) while operating on the movement area of an aerodrome, lights intended to attract attention to the aircraft, as specified in the Integrated Aeronautical Information Publication (IAIP); and

(d) while operating with engines running on the movement area of an aerodrome, display a rotating beacon to indicate that fact.

(2) Except as provided by sub-regulation (4) –

(a) all aircraft moving on the movement area of an aerodrome during night shall display navigation lights intended to indicate the relative path of the aircraft to an observer; and

(b) unless stationary and otherwise adequately illuminated, all aircraft on the movement area of an aerodrome during night shall display lights intended to indicate the extremities of their structure.

(3) In respect of sub-regulations (1) (b) and (2) (a), other lights shall not be displayed if they are likely to be mistaken for these lights.

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

(a) adversely affect the satisfactory performance of duties; or

(b) subject an outside observer to harmful dazzle.

(5) The lights which have to be displayed by aircraft by day, night, on water or on the manoeuvring area of an aerodrome, shall be as prescribed in Document SA-CATS-OPS 91.

**Taxi rules**

**91.06.11** (1) Aircraft which are landing or taking off, shall be given right of way by other aircraft and by vehicles.

(2) An aircraft shall, after landing, unless otherwise authorised or instructed by an air traffic service unit, be moved clear of the runway in use, as soon as it is safely possible to do so.

(3) A vehicle which is towing an aircraft shall be given right of way by vehicles and by other aircraft which are not landing or taking off.

(4) An aircraft shall be given right of way by a vehicle which is not towing an aircraft.

(5) An aircraft or vehicle which is obliged by the provisions of this regulation to give right of way to another aircraft, shall, if necessary in the circumstances in order to do so, reduce its speed or stop.

(6) If danger of collision exists between an aircraft or vehicle and another aircraft or vehicle, such of the following procedures as may be appropriate in the circumstances, shall be applied:

(a) When the two are approaching head-on or nearly head-on, each shall turn to the right;

(b) when one is overtaking the other, the one which is overtaking shall keep out of the way of the other by turning to the right, and no subsequent change in the relative positions of the two shall absolve the one which is overtaking from this obligation, until it is finally past and clear of the other;

(c) when the two are converging, 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.

(7) A vehicle moving along a runway or taxiway, shall as far as practicable keep to the right side of the runway or taxiway.

(8) When an aircraft is being towed, the person in charge of the towing vehicle shall be responsible for compliance with the provisions of this regulation.

(9) An aircraft operated on a controlled aerodrome shall not taxi on the manoeuvring area without clearance from the aerodrome control tower and shall comply with any instructions given by that unit.

(10) An aircraft taxiing on the manoeuvring area of an uncontrolled aerodrome shall taxi in accordance with the ground control procedures which may be in force at such aerodrome.

(11) While taxiing, an aircraft shall –

(a) stop and hold at all runway-holding positions unless otherwise authorized by the aerodrome control tower; and

(b) stop at all lighted stop bars and may proceed further when the lights are switched off.

(12) Nothing in this regulation shall relieve the pilot-in-command of an aircraft or the person in charge of a vehicle, from the responsibility for taking such action as will best aid to avert collision.

**Operation on and in the vicinity of aerodrome**

**91.06.12** (1) The pilot-in-command of an aircraft operated on or in the vicinity of an aerodrome, shall be responsible for compliance with the following rules –

(a) observe other aerodrome traffic for the purpose of avoiding collision;

(b) conform with or avoid the pattern of traffic formed by other aircraft in operation;

(c) make all turns to the left when approaching for a landing and after taking off, unless otherwise instructed by an air traffic service unit, or unless a right hand circuit is in force: Provided that a helicopter may, with due regard to other factors and when it is in the interest of safety, execute a circuit to the opposite side;

(d) land and take off, as far as practicable, into the wind unless safety, the runway configuration or air traffic considerations dictate that a different direction is preferable, or unless otherwise instructed by an air traffic service unit; and

(e) fly across the aerodrome or its environs at a height of not less than 2 000 feet above the level of such aerodrome: Provided that if circumstances require such pilot-in-command to fly at a height of less than 2 000 feet above the level of the aerodrome, he or she shall conform with the traffic pattern at such aerodrome.

(2) If an aerodrome control tower is in operation, the pilot-in-command shall also, whilst the aircraft is within the aerodrome traffic zone –

(a) maintain a continuous radio watch on the frequency of the aerodrome control tower responsible for providing aerodrome control service at the aerodrome, establish two way radio communication as necessary for aerodrome control purposes and obtain such clearances for his or her movements as may be necessary for the protection of aerodrome traffic; or

(b) if this is not possible, keep a watch for and comply with such clearances and instructions as may be issued by visual means.

(3) If an aerodrome flight information service unit is in operation, the pilot-in-command shall also, whilst the aircraft is within the aerodrome traffic zone –

(a) maintain a continuous radio watch on the frequency of the aerodrome flight information service unit responsible for providing aerodrome flight information service at the aerodrome, establish two-way radio communication as necessary for aerodrome flight information service purposes and obtain information in respect of the surface wind, runway in use and altimeter setting and in respect of aerodrome traffic on the manoeuvring area and in the aerodrome traffic zone; or

(b) if this is not possible, keep a watch for visual signals which may be displayed or may be issued by the aerodrome flight information service unit.

(4) An aircraft which is unable to communicate by radio shall, before landing at an aerodrome, make a circuit of the aerodrome for the purpose of observing the traffic, and reading such ground markings and signals as may be displayed thereon, unless it has the consent of the appropriate air traffic service unit to do otherwise.

**Signals**

**91.06.13** (1) The pilot-in-command of an aircraft in flight shall, upon observing or receiving any of the signals as prescribed in Document SA-CATS-OPS 91, take such action as may be required by the interpretation of the signal as prescribed in Document SA-CATS-OPS 91.

(2) No person may perform the functions of a signalman unless trained and qualified to carry out such functions as contained in Document SA-CATS-OPS 91.

(3) Any person acting as a signalman shall be responsible for providing the standard marshalling signals, as prescribed in Document SA-CATS-OPS 91, to aircraft in a clear and precise manner.

**Water operations**

**91.06.14** (1) When two aircraft or an aircraft and a vessel are approaching one another and there is a risk of collision, the aircraft shall proceed with careful regard to existing circumstances and conditions including the limitations of the respective craft.

(2) An aircraft which has another aircraft or a vessel on its right shall give way so as to keep well clear.

(3) An aircraft approaching another aircraft or a vessel head-on, or approximately so, shall alter its heading to the right to keep well clear.

(4) An aircraft or vessel which is being overtaken has the right of way, and the one overtaking shall alter its heading to keep well clear.

(5) Aircraft landing on or taking off from the water shall, insofar as practicable, keep well clear of all vessels and avoid impeding their navigation.

(6) All aircraft on the water shall display lights between sunset and sunrise as prescribed in technical standard 91.06.10 of Document SA-CATS-OPS 91.

(7) In areas in which the International Regulations for Preventing Collisions at Sea are in force, aircraft operated on the water shall comply with the provisions thereof.

**Reporting position**

**91.06.15** (1) The pilot-in-command of an aircraft –

(a) flying in controlled airspace;

(b) flying in advisory airspace; or

(c) on a flight for which alerting action is being provided,

shall ensure that reports are made to the responsible air traffic service unit, as soon as possible, of the time and level of passing each compulsory reporting point, together with any other required information, and he or she shall further ensure that position reports are similarly made in relation to additional reporting points, if so requested by the responsible air traffic service unit and that, in the absence of designated reporting points, position reports are made at the intervals specified by the responsible air traffic service unit or published by the Commissioner in terms of Part 175 for that area.

(2) Controlled flights providing position information to the appropriate air traffic service unit via data link communications shall only provide voice position reports when requested.

**Mandatory radio communication in controlled airspace**

**91.06.16** The pilot-in-command of an aircraft to be operated in or crossing a controlled airspace shall ensure that, before the aircraft enters such airspace, two-way radio contact is established with the responsible air traffic service unit on the designated radio frequency, and shall ensure, while the aircraft is within, and until it leaves, the controlled airspace, that continuous radio watch is maintained and that such further two-way radio communication as such air traffic service unit may require, is established: Provided that –

(a) the air traffic service unit may permit an aircraft not capable of maintaining continuous two-way radio communication, to fly in the control area, terminal control area, control zone or aerodrome traffic zone for which it is responsible, if traffic conditions permit, in which case the flight shall be subject to such conditions as such air traffic service unit deems necessary to ensure the safety of other air traffic; and

(b) in the case of radio failure, a flight for which an air traffic service flight plan was filed and activated by the air traffic service unit on receipt of a departure time, may continue in controlled airspace if the communication failure procedures specified in Document SA-CATS-OPS 91 are complied with.