

**SPECIAL ISSUE**

Kenya Gazette Supplement No. 100

2631

10th July, 2018

(Legislative Supplement No. 52)

LEGAL NOTICE NO. 165

THE CIVIL AVIATION ACT

(No. 21 of 2013)

CIVIL AVIATION (OPERATION OF AIRCRAFT - GENERAL AVIATION -  
AEROPLANES) REGULATIONS, 2018

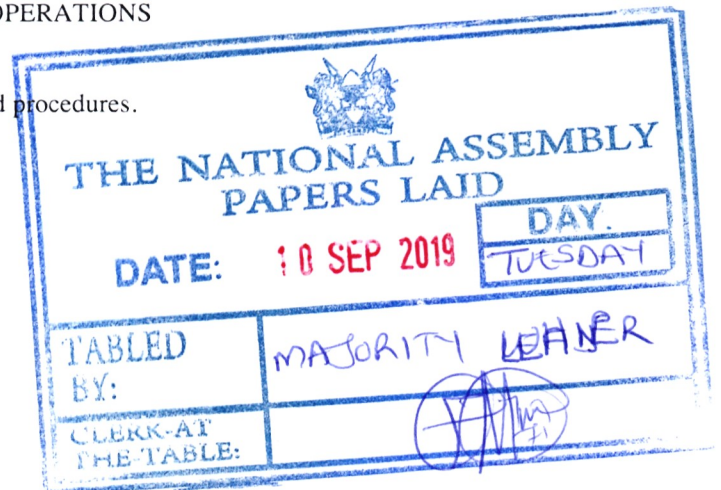
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**THE CIVIL AVIATION ACT**

(No. 21 of 2013)

IN EXERCISE of powers conferred by section 82 of the Civil Aviation Act, the Cabinet Secretary for Transport, Infrastructure, Housing and Urban Development makes the following Regulations—

**THE CIVIL AVIATION (OPERATION OF AIRCRAFT- GENERAL AVIATION- AEROPLANES) REGULATIONS, 2018**

**PART I — PRELIMINARY PROVISIONS**

1. These Regulations may be cited as the Civil Aviation (Operation of Aircraft— General Aviation —Aeroplanes) Regulations, 2018. Citation.

2. In these Regulations, unless the context otherwise requires— Interpretation.

“Accelerate-Stop Distance Available (ASDA)” means the length of the take-off run available plus the length of stopway, if provided;

“Act” means the Civil Aviation Act, 2013;

“acts of unlawful interference” means acts or attempted acts such as to jeopardize the safety of civil aviation and air transport, including—

- (a) unlawful seizure of aircraft in flight;
- (b) unlawful seizure of aircraft on the ground;
- (c) hostage-taking on board an aircraft or on aerodromes;
- (d) forcible intrusion on board an aircraft, at an airport or on the premises of an aeronautical facility;
- (e) introduction on board an aircraft or at an airport of a weapon or hazardous device or material intended for criminal purposes; and
- (f) communication of false information as to jeopardize the safety of an aircraft in flight or on the ground, of passengers, crew, ground personnel or the general public, at an airport or on the premises of a civil aviation facility;

“aerial work” means an aircraft operation in which an aircraft is used for specialised services including, but not limited to agriculture, construction, photography, surveying, observation and patrol, search and rescue and aerial advertisement;

“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 operating minima” means the limits of usability of an aerodrome for—

- (a) take-off, expressed in terms of runway visual range and visibility and, if necessary, cloud conditions;

- (b) landing in 2D instrument approach operations, expressed in terms of visibility or runway visual range, minimum descent altitude/height (MDA/H) and, if necessary, cloud conditions; and
- (c) landing in 3D instrument approach operations, expressed in terms of visibility or runway visual range and decision altitude or height (DA/H) as appropriate to the type or category of the operation;

“aeronautical product” means any aircraft, aircraft engine, propeller, or subassembly, appliance, material, part, or component to be installed;

“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 any machine that can derive support in the atmosphere from the reactions of the air, other than the reactions of the air against the earth’s surface; “aircraft component” means any component part of an aircraft up to and including a complete power plant or any operational or emergency equipment;

“aircraft operating manual” means a manual, acceptable to the Authority, containing normal, abnormal and emergency procedures, checklists, limitations, performance information, details of the aircraft systems and other material relevant to the operation of the aircraft;

“airframe” means the fuselage, booms, nacelles, cowlings, fairings, airfoil surfaces, including rotors (but excluding propellers and rotating airfoils of a powerplant) and landing gear of an aircraft and their accessories and controls;

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

“air traffic control service” means a service provided for the purpose of—

- (a) preventing collisions—
  - (i) between aircraft; and
  - (ii) on manoeuvring area between aircraft and obstructions; and
- (b) expediting and maintaining an orderly flow of air traffic;

“air traffic service” is a generic term meaning variously flight information service, alerting service, air traffic advisory service, or air traffic control service; (area control service, approach control service or aerodrome control service);

“aircraft type” means all aircraft of the same basic design;

“airworthy” means the status of an aircraft, engine, propeller or part when it conforms to its approved design and is in a condition for safe operation;

“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 including 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 alternate aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while en route;
- (c) 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;

“altimetry system error (ASE)” means the difference between the altitude indicated by the altimeter display, assuming a correct altimeter barometric setting, and the pressure altitude corresponding to the undisturbed ambient pressure;

“appliance” means any instrument, mechanism, equipment, part, apparatus, appurtenance, or accessory, including communications equipment, that is used or intended to be used in operating or controlling an aircraft in flight, is installed in or attached to the aircraft, and is not part of an airframe, power plant, or propeller;

“Approach Procedure with Vertical guidance (APV)” is a performance-based navigation (PBN) instrument approach procedure designed for 3D instrument approach operations Type A;

“approach and landing operations using instrument approach procedures” means instrument approach and landing operations classified as follows—

- (a) non-precision approach and landing operations- an instrument approach and landing which utilizes lateral guidance but does not utilize vertical guidance;
- (b) approach and landing operations with vertical guidance- an instrument approach and landing which utilizes lateral and vertical guidance but does not meet the requirements established for precision approach and landing operations; and
- (c) precision approach and landing operations- an instrument approach and landing using precision lateral and vertical guidance with minima as determined by the category of operation;

“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 overflown;

“Automatic Deployable Flight Recorder (ADFR)”. A combination flight recorder installed on the aircraft which is capable of automatically deploying from the aircraft;

“authorised instructor” means a person who—

- (a) holds a valid ground instructor licence issued under the Civil Aviation (Personnel Licensing) Regulations when conducting ground training;
- (b) holds a current flight instructor rating issued under the Civil Aviation (Personnel Licensing) Regulations when conducting ground training or flight training; or
- (c) is authorised by the Authority to provide ground training or flight training under the Civil Aviation (Personnel Licensing) and the Civil Aviation (Approved Training Organisations) Regulations;

“authorised person” means any person authorized by the Authority either generally or in relation to a particular case or class of cases, and references to an authorized person includes references to a holder for the time being of any office designated by the Authority;

“Authority” means the Kenya Civil Aviation Authority;

“cabin crew member” means a crew member who performs, in the interest of safety of passengers, duties assigned by the operator or the pilot-in-command of the aircraft, but who shall not act as a flight crew member;

“Category II (CAT II) operations” means, a precision instrument approach and landing with a decision height lower than 60 m (200 ft) , but not lower than 30 m (100 ft), and a runway visual range not less than 350 m;

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

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

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

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

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

“check pilot” means a pilot approved by the Authority who has the appropriate training, experience, and demonstrated ability to evaluate and certify the knowledge and skills of other pilots;

“*COMAT*”. Operator material carried on an operator’s aircraft for the operator’s own purposes;

“Combined Vision System (CVS)” means a system to display images from a combination of an enhanced vision system (EVS) and a synthetic vision system (SVS);

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

“continuing airworthiness” means the set of processes by which an aircraft, engine, propeller or part complies with the applicable airworthiness requirements and remains in a condition for safe operation throughout its operating life;

“Contracting States” means all States that are parties to the Convention on International Civil Aviation (Chicago Convention);

“Continuous descent final approach (CDFA)”. A technique, consistent with stabilized approach procedures, for flying the final approach segment of a non-precision instrument approach procedure as a continuous descent, without level-off, from an altitude/height at or above the final approach fix altitude/height to a point approximately 15 m (50 ft) above the landing runway threshold or the point where the flare manoeuvre should begin for the type of aircraft flown;

“corporate aviation operation” means the non-commercial operation or use of aircraft by a company for the carriage of passengers or goods as an aid to the conduct of company business, flown by a professional pilot(s) employed to fly the aircraft;

“co-pilot” means a licensed pilot serving in any piloting capacity other than as PIC, but excluding a pilot who is on board the aircraft for the sole purpose of receiving flight instruction;

“crew member” means a person assigned by an operator to duty on an aircraft during a flight duty period;

“crew resource management (CRM)” means a program designed to improve the safety of flight operations by optimizing the safe, efficient, and effective use of human resources, hardware, and information through improved crew communication and co-ordination;

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

“critical phases of flight” means those portions of operations involving taxing, take-off and landing, and all flight operations below 10,000 feet, except cruise flight;

“dangerous goods” means articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in the Technical Instructions or which are classified according to those Instructions;

“Decision Altitude (DA) or Decision Height (DH)” means a specified altitude or height in the precision approach or approach with vertical guidance at which a missed approach must be initiated if the

required visual reference to continue the approach has not been established;

“duty” means any task that flight or cabin crew members are required by the operator to perform, including, for example, flight duty, administrative work, training, positioning and standby when it is likely to induce fatigue;

“duty period” means a period which starts when a flight or cabin crew member is required by an operator to report for or to commence a duty and ends when that person is free from all duties.

“Extended Diversion Time Operations (EDTO)” means any operation by an aeroplane with two or more turbine engines where the diversion time to an en-route alternate aerodrome is greater than the threshold time established by the Authority;

“EDTO critical fuel.” means the fuel quantity necessary to fly to an en-route alternate aerodrome considering, at the most critical point on the route, the most limiting system failure.;

“EDTO significant system” means an aeroplane system whose failure or degradation could adversely affect the safety particular to an EDTO flight, or whose continued functioning is specifically important to the safe flight and landing of an aeroplane during an EDTO diversion;

“Electronic Flight Bag (EFB)” means an electronic information system, comprised of equipment and applications for flight crew, which allows for the storing, updating, displaying and processing of EFB functions to support flight operations or duties;

“Emergency Locator Transmitter (ELT)” means a generic term describing equipment which broadcast distinctive signals on designated frequencies and, depending on application, may be automatically activated by impact or be manually activated and an ELT may be any of the following—

- (a) Automatic fixed ELT (ELT(AF)) means an automatically activated ELT which is permanently attached to an aircraft;
- (b) Automatic portable ELT (ELT(AP)) means an automatically activated (b) ELT which is rigidly attached to an aircraft but readily removable from the aircraft;
- (c) Automatic deployable ELT (ELT(AD)) means an ELT which is rigidly attached to an aircraft and which is automatically deployed and activated by impact, and, in some cases, also by hydrostatic sensors. Manual deployment is also provided;
- (d) Survival ELT (ELT(S)) means an ELT which is removable from an aircraft, stowed so as to facilitate its ready use in an emergency, and manually activated by survivors;

“engine” means a unit used or intended to be used for aircraft propulsion and it consists of at least those components and equipment necessary for functioning and control, but excludes the propeller/rotors (if applicable);

“Enhanced Vision system (EVS)” means a system to display electronic real-time images of the external scene achieved through the use of image sensors;

“extended flight over water” means a flight operated over water at a distance of more than 93 km (50 NM), or 30 minutes at normal cruising speed, whichever is the lesser, away from land suitable for making an emergency landing;

“estimated time of arrival” means for 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 and for VFR flights, the time at which it is estimated that the aircraft will arrive over the aerodrome;

“evaluator” means a person employed by an Approved Training Organisation who performs tests for licensing, added ratings, authorisations, and proficiency checks that are authorised by the certificate holder's training specification, and who is authorised by the Authority to administer such checks and tests;

“examiner” means any person authorised by the Authority to conduct a proficiency test, a practical test for a licence or rating, or a knowledge test under these Regulations;

“fatigue” means a physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness and/or physical activity that can impair a crew member's alertness and ability to safely operate an aircraft or perform safety related duties;

“Fatigue Risk Management System (FRMS)” means a data-driven means of continuously monitoring and managing fatigue-related safety risks, based upon scientific principles and knowledge as well as operational experience that aims to ensure relevant personnel are performing at adequate levels of alertness;

“Final approach segment (FAS)” means that segment of an instrument approach procedure in which alignment and descent for landing are accomplished;

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

“flight data analysis” means a process of analysing recorded flight data in order to improve the safety of flight operations;

“flight duty period” means a period which commences when a flight or cabin crew member is required to report for duty that includes a flight or a series of flights and which finishes when the aeroplane finally comes to rest and the engines are shut down at the end of the last flight on which he or she is a crew member;

“flight manual” means a manual, associated with the certificate of airworthiness, containing limitations within which the aircraft is to

be considered airworthy, and instructions and information necessary to the flight crew members for the safe operation of the aircraft;

“flight operations officer or flight dispatcher” means a person designated by the operator to engage in the control and supervision of flight operations, whether licensed or not, suitably qualified in accordance with Civil Aviation (Personnel Licensing) Regulations, who supports, briefs or assists the pilot-in-command in the safe conduct of the flight;

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

“flight recorder” means any type of recorder installed in the aircraft for the purpose of complementing accident or incident investigation;

“flight safety documents system” means a set of interrelated documentation established by the operator, compiling and organizing information necessary for flight and ground operations, and comprising, as a minimum, the operations manual and the operator’s maintenance control manual;

“flight simulation training device” means any one of the following three types of apparatus in which flight conditions are simulated on the ground—

- (a) a flight simulator, which provides an accurate representation of the flight deck of a particular aircraft type to the extent that the mechanical, electrical, electronic, etc. aircraft systems control functions, the normal environment of flight crew members, and the performance and flight characteristics of that type of aircraft are realistically simulated;
- (b) a flight procedures trainer, which provides a realistic flight deck environment, and which simulates instrument responses, simple control functions of mechanical, electrical, electronic, etc. aircraft systems, and the performance and flight characteristics of aircraft of a particular class;
- (c) a basic instrument flight trainer, which is equipped with appropriate instruments, and which simulates the flight deck environment of an aircraft in flight in instrument flight conditions;

“flight time” means—

- (a) for aeroplanes and gliders the total time from the moment an aeroplane or a glider moves for the purpose of taking off until the moment it finally comes to rest at the end of the flight and it is synonymous with the term “block to block” or “chock to chock” time in general usage which is measured from the time an aeroplane first moves for the purpose of taking off until it finally stops at the end of the flight;

- (b) for helicopter the total time from the moment a helicopter rotor blades start turning until the moment a helicopter comes to rest at the end of the flight and the rotor blades are stopped; and
- (c) for airships or free balloon the total time from the moment an airship or free balloon first becomes detached from the surface until the moment when it next becomes attached thereto or comes to rest thereon;

“general aviation operation” means an aircraft operation other than a commercial air transport operation or an aerial work operation;

“ground handling services” means services necessary for an aircraft’s arrival at, and departure from, an airport, other than air traffic services;

“handling agent” means an agency which performs on behalf of the operator some or all of the latter’s functions including receiving, loading, unloading, transferring or other processing of passengers or cargo;

“Head-Up Display (HUD)” means a display system that presents flight information into the pilot’s forward external field of view;

“heavier-than-air aircraft” means any aircraft deriving its lift in flight chiefly from aerodynamic forces;

“human factors principles” means principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance;

“human performance” means human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations;

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

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 thereafter, if a landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply. Instrument approach procedures are classified as follows—

- (a) non-precision approach (NPA) procedure;
- (b) approach procedure with vertical guidance (APV); and
- (c) precision approach (PA) procedure.

“instrument approach operations” means an approach and landing using instruments for navigation guidance based on an instrument approach procedure, there are two methods for executing instrument approach operations—

- (a) a two-dimensional (2D) instrument approach operation, using lateral navigation guidance only; and<sup>4</sup>
- (b) a three-dimensional (3D) instrument approach operation, using both lateral and vertical navigation guidance;

“Instrument Approach Procedure (IAP)” means a series of predetermined 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 thereafter, if a landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply. Instrument approach procedures shall be classified as follows—

- (a) Non-Precision Approach (NPA) procedure. An instrument approach procedure designed for 2D instrument approach operations Type A;
- (b) Approach Procedure with Vertical guidance (APV). A performance -based navigation (PBN) instrument approach procedure designed for 3D instrument approach operations Type A; and
- (c) Precision Approach (PA) procedure. An instrument approach procedure based on navigation systems (ILS, MLS, GLS and SBAS CAT I) designed for 3D instrument approach operations Type A or B;

“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;

“isolated aerodrome” means a destination aerodrome for which there is no destination alternate aerodrome suitable for a given aeroplane type;

“journey log” means a form signed by the PIC of each flight that records the aircraft's registration, crew member names and duty assignments, the type of flight, and the date, place, and time of arrival and departure;

“landing decision point” means the point used in determining landing performance from which, an engine failure occurring at this point, the landing may be safely continued or a bailed landing initiated;

“landing distance available (LDA)” means the length of runway which is declared available and suitable for the ground run of an aeroplane landing;

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

“lighter-than-air aircraft” means any aircraft supported chiefly by its buoyancy in the air;

“maintenance” means the performance of tasks required to ensure the continuing airworthiness of an aircraft, including any one or

combination of overhaul, inspection, replacement, defect rectification, and the embodiment of a modification or repair;

“maintenance organization’s procedures manual” means a document endorsed by the head of the maintenance organization which details the maintenance organization’s structure and management responsibilities, scope of work, description of facilities, maintenance procedures and quality assurance or inspection systems;

“maintenance programme” means a document which describes the specific scheduled maintenance tasks and their frequency of completion and related procedures, such as a reliability programme, necessary for the safe operation of those aircraft to which it applies;

“certificate of release to service” means a document which contains a certification confirming that the maintenance work to which it relates has been completed in a satisfactory manner, either in accordance with the approved data and the procedures described in the maintenance organization’s procedures manual or under an equivalent system;

“major modification” means a type design change not listed in the aircraft, aircraft engine, or propeller specifications that might appreciably affect the mass and balance limits, structural strength, performance, power-plant operation, flight characteristics, or other qualities affecting airworthiness or environmental characteristics, or that will be embodied in the product according to non-standard practices;

“Master Minimum Equipment List (MMEL)” means a list established for a particular aircraft type by the organisation responsible for the type design with the approval of the State of design containing items, one or more of which is permitted to be unserviceable on the commencement of a flight. The MMEL may be associated with special operating conditions, limitations or procedures;

“maximum diversion time” means maximum allowable range, expressed in time, from a point on a route to an en-route alternate aerodrome;

“maximum mass” means maximum certificated take-off mass;

“meteorological Information” means meteorological report, analysis, forecast, and any other statement relating to existing or expected meteorological conditions;

“Minimum Descent Altitude (MDA) or Minimum Descent Height (MDH)” means a specified altitude or height in a non-precision approach or circling approach below which descent must not be made without the required visual reference;

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

“missed approach point” means that point in an instrument approach procedure at or before which the prescribed missed approach procedure must be initiated in order to ensure that the minimum obstacle clearance is not infringed;

“missed approach procedure” means the procedure to be followed if the approach cannot be continued;

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

“navigation specification” means a set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace which are of two kinds—

- (a) Required Navigation Performance (RNP) specification which means a navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH;
- (b) Area Navigation (RNAV) specification which means a navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1;

“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 m;

“Non-Precision Approach (NPA) procedure” means an instrument approach procedure designed for 2D instrument approach operations Type A;

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

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

“Operating Base” means the location from which operational control is exercised;

“operational control” means the exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of the flight;

“operational flight plan” means the operator’s plan for the safe conduct of the flight based on considerations of aircraft performance, other operating limitations, and relevant expected conditions on the route to be followed and at the aerodromes or heliports concerned;

“operations manual” means a manual containing procedures, instructions and guidance for use by operational personnel in the execution of their duties;

“operator’s maintenance control manual” means a document which describes the operator’s procedures necessary to ensure that all scheduled and unscheduled maintenance is performed on the operator’s aircraft on time and in a controlled and satisfactory manner;

“overhaul” means the restoration of an aircraft or aeronautical product using methods, techniques, and practices acceptable to the Authority, including disassembly, cleaning, and inspection as permitted, repair as necessary, and reassembly; and tested 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 Authorisation (PMA) or Technical Standard Order (TSO);

“passenger exit seats” means those seats having direct access to an exit, and those seats in a row of seats through which passengers would have to pass to gain access to an exit, from the first seat inboard of the exit to the first aisle inboard of the exit;

“performance-based communication (PBC)” means communication based on performance specifications applied to the provision of air traffic services;

“performance-based navigation (PBN)” means area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace;

“Performance-Based Surveillance (PBS)”. Surveillance based on performance specifications applied to the provision of air traffic services;

“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;

“point of no return” means the last possible geographic point at which an aircraft can proceed to the destination aerodrome as well as to an available en-route alternate aerodrome for a given flight;

“psychoactive substances” means alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psychostimulants, hallucinogens, and volatile solvents, whereas coffee and tobacco are excluded;

“power-plant” means an engine that is used or intended to be used for propelling aircraft and includes turbo superchargers, appurtenances, and accessories necessary for its functioning, but does not include propellers;

“practical test” means a competency test on the areas of operations for a licence, certificate, rating, or authorisation that is

conducted by having the applicant respond to questions and demonstrate manoeuvres in flight or in an approved synthetic flight trainer;

“Precision Approach (PA) procedure” means an instrument approach procedure based on navigation systems (ILS, MLS, GLS and SBAS CAT I) designed for 3D instrument approach operations Type A or B;

“pressure-altitude” means an atmospheric pressure expressed in terms of altitude which corresponds to that pressure in the Standard Atmosphere;

“problematic use of substances” means the use of one or more psychoactive substances by aviation personnel in a way that—

- (a) constitutes a direct hazard to the user or endangers the lives, health or welfare of others; and
- (b) causes or worsens an occupational, social, mental or physical problem or disorder;

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

“psychoactive substance” means alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psychostimulants, hallucinogens, and volatile solvents, whereas coffee and tobacco are excluded;

“repair” means the restoration of an aeronautical product to an airworthy condition to ensure that the aircraft continues to comply with the design aspects of the appropriate airworthiness requirements used for the issuance of the type certificate for the respective aircraft type, after it has been damaged or subjected to wear;

“Required Communication Performance (RCP) specification” means a set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based communication;

“Required Surveillance Performance (RSP) specification” means a set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based surveillance;

“Required Navigation Performance (RNP)” means a statement of the navigation performance necessary for operation within a defined airspace;

“rest period” means a continuous and defined period of time, subsequent to or prior to duty, during which flight or cabin crew members are free of all duties;

“runway surface condition” means the state of the surface of the runway: either dry, wet, or contaminated—

- (a) contaminated runway. A runway is contaminated when more than 25 per cent of the runway surface area (whether in isolated areas or not) within the required length and width being used is covered by —
  - (i) water, or slush more than 3 mm (0.125 in) deep;
  - (ii) loose snow more than 20 mm (0.75 in) deep; or
  - (iii) compacted snow or ice, including wet ice.
- (b) dry runway. A dry runway is one which is clear of contaminants and visible moisture within the required length and the width being used; and
- (c) wet runway. A runway that is neither dry nor contaminated;

“Runway Visual Range (RVR)” means the range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centre line;

“RVSM” means reduced vertical separation minimum;

“RVSM (Reduced Vertical Separation Minima) Airspace” means any airspace or route between flight level 290 and flight level 410 inclusive where the aircraft are separated vertically by 1000ft (300m);

“safe forced landing” means unavoidable landing or ditching with a reasonable expectancy of no injuries to persons in the aircraft or on the surface;

“safety management system” means a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures;

“safety programme” means an integrated set of regulations and activities aimed at improving safety;

“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;

“serious injury” means an injury which is sustained by a person in an accident and which—

- (a) requires hospitalisation for more than 48 hours, commencing within seven days from the date the injury was received;
- (b) results in a fracture of any bone (except simple fractures of fingers, toes or nose);
- (c) involves lacerations which cause severe haemorrhage, nerve, muscle or tendon damage;
- (d) involves injury to any internal organ;
- (e) involves second or third degree burns, or any burns affecting more than 5% of the body surface; or

(f) involves verified exposure to infectious substances or injurious radiation;

“small aeroplane” means an aeroplane having a maximum certified take-off mass of 5,700 kg (12,500 lbs) or less;

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

“State of the Aerodrome” means the State in whose territory the aerodrome is located;

“state of design” means the Contracting State which approved the original type certificate and any subsequent supplemental type certificates for an aircraft, or which approved the design of an aircraft, aircraft component or appliance;

“State of Registry” means the State on whose register the aircraft is entered;

“State of the Operator” means the State in which the operator’s principal place of business is located or, if there is no such place of business, the operator’s permanent residence;

“substance” means alcohol, sedatives, hypnotics, anxiolytics, hallucinogens, opioids, cannabis, inhalants, central nervous system stimulants such as cocaine, amphetamines, and similarly acting sympathomimetics, phencyclidine or similarly acting arylecyclohexylamines, and other psychoactive drugs and chemicals;

“Synthetic Vision system (SVS)” means a system to display data-derived synthetic images of the external scene from the perspective of the flight deck;

“take-off decision point” means the point used in determining take-off performance from which, an engine failure occurring at this point, either a rejected take-off may be made or a take-off safely continued;

“Target Level of Safety (TLS)” means a generic term representing the level of risk which is considered acceptable in particular circumstances;

“technical Instructions” means edition of the Technical Instructions for the Safe Transport of Dangerous Goods by Air approved and published by decision of the Council of the International Civil Aviation Organisation;

“threshold time” means the range, expressed in time, established by the Authority, to an en-route alternate aerodrome, whereby any time beyond requires an EDTO approval from the Authority;

“Total Vertical Error (TVE)” means the vertical geometric difference between the actual pressure altitude flown by an aircraft and its assigned pressure altitude (flight level);

“training program” means a program that consists of courses, courseware, facilities, flight training equipment, and personnel necessary to accomplish a specific training objective and may include a core curriculum and a specialty curriculum;

“Tribunal” means the National Civil Aviation Administrative Review Tribunal established under section 66 of the Act;

Visual Meteorological Conditions (VMC) means meteorological terms expressed in terms of visibility, distance from cloud, and ceiling, equal to or better than specified minima;

“ $V_1$ ” means take-off decision speed; and

“ $V_{mo}$ ” means maximum operating speed.

#### PART II— GENERAL AVIATION REGULATIONS

3. These Regulations shall be applicable to general aviation operations with aeroplanes as described in Part II and Part III.

Applicability.

4. The pilot-in-command of a Kenyan registered aeroplane shall—

Compliance with laws, regulations and procedures.

- (a) comply with the Kenyan laws, regulations, and procedures;
- (b) comply with the laws, regulations and procedures of any other State;
- (c) be familiar with the laws, regulations and procedures, pertinent to the performance of his or her duties, prescribed for the areas to be traversed, the aerodromes to be used and the air navigation facilities relating thereto and the pilot-in-command shall ensure that other members of the flight crew are familiar with such laws, regulations and procedures as are pertinent to the performance of their respective duties in the operation of the aeroplane;
- (d) have responsibility for operational control;
- (e) notify the appropriate local authority without delay, if an emergency situation which endangers the safety or security of the aeroplane or persons necessitates the taking of action which involves a violation of local regulations or procedures. If required by the State in which the incident occurs, the pilot-in-command shall submit a report on any such violation to the appropriate authority of such State; in that event, the pilot-in-command shall also submit a copy of it to the Director General during the next working day from the time of landing;
- (f) have available on board the aeroplane the essential information concerning the search and rescue services in the area over which the aeroplane will be flown; and
- (g) ensure that flight crew members demonstrate the ability to speak and understand the language used for aeronautical radiotelephony communications.

5. (1) A Kenyan-registered aeroplane shall not carry any dangerous goods unless —

Dangerous goods.

- (a) the Authority has granted to the operator a dangerous goods permit, subject to such conditions as the Authority finds it fit, to carry dangerous goods on board its aeroplane; and

- (b) such goods are carried or loaded as cargo in accordance with—
- (i) the provisions approved by the Authority and any conditions to which such approval may be subject; and
  - (ii) in accordance with the Technical Instructions for the Safe Transport of Dangerous Goods by Air approved and published by the Authority in compliance with the decisions of the Council of the International Civil Aviation Organisation for the time being in force.

(2) An application for a dangerous goods permit shall—

- (a) be submitted to the Authority for consideration before the proposed date of shipment; and
- (b) contain the information required by the Authority and the duly completed dangerous goods transport document at the time the application is made.

(3) The Authority may issue a dangerous goods permit for the carriage of dangerous goods on a single return flight (ad hoc permit) or on more than 10 return flights over a period of 6 months (block permit).

(4) Sub-regulation (1) and (2) shall not apply to the following dangerous goods that are carried in compliance with the Technical Instructions —

- (a) required to be aboard the aeroplane in accordance with the relevant airworthiness requirements and operating regulations or that are authorised by the State of the operator to meet special requirements;
- (b) required to provide, during flight, medical aid to a patient;
- (c) required to provide, during flight, veterinary aid or a humane killer for an animal;
- (d) required to provide, during flight, aid in connection with search and rescue operations;
- (e) permitted for carriage by passengers or crew members;
- (f) intended for use or sale during the flight in question;
- (g) vehicles carried in aeroplane designed or modified for vehicle ferry operations; or
- (h) required for the propulsion of the means of transport or the operation of its specialised equipment during transport such as refrigeration units or that are required in accordance with any operating regulations such as fire extinguishers.

6. (1) A member of a flight crew shall not perform any function specified in the privileges applicable to his licence if he is under the influence of any psychoactive substance which may render him unable to perform such functions in a safe and proper manner.

(2) Safety-sensitive personnel shall not undertake any function while under the influence of any psychoactive substance, by reason of which human performance is impaired.

Use of  
psychoactive  
substances.

7. The pilot-in-command shall not conduct operations for which a specific approval is required unless such approval has been issued by the Authority and specific approvals shall follow the layout and contain at least the information listed in the First Schedule.

Specific approvals.

#### FLIGHT OPERATIONS

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

Operating facilities.

9. (1) An aeroplane shall not be taxied on the movement area of an aerodrome unless the person at the controls is an appropriately qualified pilot or—

Operational management.

- (a) has been duly authorized by the owner or in the case where it is leased the lessee, or a designated agent;
- (b) is fully competent to taxi the aeroplane;
- (c) is qualified to use the radio if radio communications are required; and
- (d) has received instructions from a competent person with respect of aerodrome layout, and where appropriate, information on routes, signs, marking, lights, ATC signals and instructions, phraseology and procedures, and is able to conform to the operational standards required for safe aeroplane movement at the aerodrome.

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

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

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

- (a) type A— a minimum descent height or decision height at or above 75 m (250 ft); and
- (b) type B— a decision height below 75 m (250 ft) and Type B instrument approach operations are categorized as—
  - (i) Category I (CAT I): a decision height not lower than 60 m (200 ft) and with either a visibility not less than 800 m or a runway visual range not less than 550 m;

- (ii) Category II (CAT II): a decision height lower than 60 m (200 ft) but not lower than 30 m (100 ft) and a runway visual range not less than 300 m;
- (iii) Category IIIA (CAT IIIA): a decision height lower than 30 m (100 ft) or no decision height and a runway visual range not less than 175 m;
- (iv) Category IIIB (CAT IIIB): a decision height lower than 15 m (50 ft) or no decision height and a runway visual range less than 175 m but not less than 50 m; and
- (v) Category IIIC (CAT IIIC): no decision height and no runway visual range limitations.

(5) The operating minima for 2D instrument approach operations using instrument approach procedures shall be determined by establishing a minimum descent altitude (MDA) or minimum descent height (MDH), minimum visibility and, if necessary, cloud conditions.

(6) The operating minima for 3D instrument approach operations using instrument approach procedures shall be determined by establishing a Decision Altitude (DA) or Decision Height (DH) and the minimum visibility or RVR.

(7) The pilot-in-command shall ensure that passengers are made familiar with the location and use of —

- (a) seat belts;
- (b) emergency exits;
- (c) life jackets, if the carriage of life jackets is prescribed;
- (d) oxygen dispensing equipment if the use of oxygen is anticipated; and
- (e) other emergency equipment provided for individual use, including passenger emergency briefing cards.

(8) The pilot-in-command shall ensure that all persons on board are aware of the location and general manner of use of the principal emergency equipment carried for collective use.

(9) In an emergency during flight, the pilot-in-command shall ensure that passengers are instructed in such emergency action as may be appropriate to the circumstances.

(10) The pilot-in-command shall ensure that, during take-off and landing and whenever considered necessary by reason of turbulence or any emergency occurring during flight, all persons on board an aeroplane shall be secured in their seats by means of the seat belts or harnesses provided.

10. (1) A flight shall not be commenced until the pilot-in-command is satisfied that—

Flight preparation.

- (a) the aeroplane is airworthy, duly registered and that appropriate certificates with respect thereto are aboard the aeroplane;

- (b) the instruments and equipment installed in the aeroplane are appropriate, taking into account the expected flight conditions;
- (c) any necessary maintenance has been performed in accordance with Regulations 39, 40, and 41;
- (d) the mass of the aeroplane and centre of gravity location are such that the flight can be conducted safely, taking into account the flight conditions expected;
- (e) any load carried is properly distributed and safely secured; and
- (f) the aeroplane operating limitations, contained in the flight manual, or its equivalent, will not be exceeded.

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

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

- (a) a study of available current weather reports and forecasts; and
- (b) the planning of an alternative course of action to provide for the eventuality that the flight cannot be completed as planned, because of weather conditions.

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

(5) A flight to be conducted in accordance with the instrument flight rules shall not—

- (a) take off from the departure aerodrome unless the meteorological conditions, at the time of use, are at or above the aerodrome operating minima for that operation; and
- (b) take off or continue beyond the point of in-flight re-planning unless at the aerodrome of intended landing or at each alternate aerodrome to be selected in compliance with sub-regulation (6), current meteorological reports or a combination of current reports and forecasts indicate that the meteorological conditions will be, at the estimated time of use, at or above the aerodrome operating minima for that operation.

(6) The Authority shall establish criteria to be used for the estimated time of use of an aerodrome including a margin of time.

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

(8) A flight to be planned or expected to operate in suspected or known ground icing conditions shall not take off unless the aeroplane has been inspected for icing and, if necessary, has been given appropriate de-icing or anti-icing treatment. Accumulation of ice or other naturally occurring contaminants shall be removed so that the aeroplane is kept in an airworthy condition prior to take-off.

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

- (a) when the flight is conducted in accordance with the instrument flight rules and a destination alternate aerodrome is not required in accordance with sub-regulation (5) or when the flight is to an isolated aerodrome, flight to the aerodrome of intended landing, and after that, have a final reserve fuel for at least 45 minutes at normal cruising altitude; or
- (b) when the flight is conducted in accordance with the instrument flight rules and a destination alternate aerodrome is required, flight to the aerodrome of intended landing, then to an alternate aerodrome, and after that, have a final reserve fuel for at least 45 minutes at normal cruising altitude; or
- (c) when the flight is conducted in accordance with day VFR, flight to the aerodrome of intended landing, and after that, have a final reserve fuel for at least 30 minutes at normal cruising altitude; or
- (d) when the flight is conducted in accordance with night VFR, flight to the aerodrome of intended landing and thereafter have a final reserve fuel for at least 45 minutes at normal cruising altitude.

(10) The use of fuel after flight commencement for purposes other than originally intended during pre-flight planning shall require a re-analysis and, if applicable, adjustment of the planned operation.

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

(12) When re-fuelling with passengers embarking, on board or disembarking, two-way communications should be maintained by the aeroplane's intercommunication system or other suitable means between the ground crew supervising the re-fuelling and the pilot-in-command or other qualified personnel required by sub-regulation (9).

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

<i>Absolute pressure</i>	<i>Metres</i>	<i>Feet</i>
700 hPa	3 000	10 000
620 hPa	4 000	13 000
376 hPa	7 600	25 000

11. (1) A flight shall not be continued towards the aerodrome of intended landing, unless the latest available information indicates that at the expected time of arrival, a landing can be effected at that aerodrome or at least one destination alternate aerodrome, in compliance with the operating minima established in regulation (9) (2).

In-flight  
procedures.

(2) An instrument approach shall not be continued below 300 m (1 000 ft) above the aerodrome elevation or into the final approach segment unless the reported visibility or controlling RVR is at or above the aerodrome operating minimum.

(3) If, after entering the final approach segment or after descending below 300 m (1 000 ft) above the aerodrome elevation, the reported visibility or controlling RVR falls below the specified minimum, the approach may be continued to DA/H or MDA/H. In any case, an aeroplane shall not continue its approach-to-land beyond a point at which the limits of the aerodrome operating minima would be infringed.

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

(5) Hazardous flight conditions encountered, other than those associated with meteorological conditions, should be reported to the appropriate aeronautical station as soon as possible and the reports so rendered shall give such details as may be pertinent to the safety of other aircraft.

(6) During take-off and landing all flight crew members required to be on flight deck duty shall be at their stations.

(7) During en route all flight crew members required to be on flight deck duty shall remain at their stations except when their absence is necessary for the performance of duties in connection with the operation of the aeroplane or for physiological needs.

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

(9) When safety harnesses are provided, any flight crew member occupying a pilot's seat shall keep the safety harness fastened during the take-off and landing phases; all other flight crew members shall

keep their safety harnesses fastened during the take-off and landing phases unless the shoulder straps interfere with the performance of their duties, in which case the shoulder straps may be unfastened but the seat belt must remain fastened.

(10) All flight crew members, when engaged in performing duties essential to the safe operation of an aeroplane in flight, shall use breathing oxygen continuously whenever the circumstances prevail for which supply has been prescribed in accordance with these Regulations.

(11) An operator shall establish procedures to ensure cabin crew are safeguarded so as to ensure reasonable probability of their retaining consciousness during any emergency descent which may be necessary in the event of loss of pressurization and, in addition, they should have such means of protection as will enable them to administer first aid to passengers during stabilized flight following the emergency.

(12) Passengers shall be safeguarded by such devices or operational procedures as will ensure reasonable probability of their surviving the effects of hypoxia in the event of loss of pressurization.

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

(14) The pilot-in-command shall advise ATC of a minimum fuel state by declaring MINIMUM FUEL when, having committed to land at a specific aerodrome, the pilot calculates that any change to the existing clearance to that aerodrome, or other air traffic delays, may result in landing with less than the planned final reserve fuel.

(15) The pilot-in-command shall declare a situation of fuel emergency by broadcasting MAYDAY MAYDAYMAYDAY FUEL, when the calculated usable fuel estimated to be available upon landing at the nearest aerodrome where a safe landing can be made is less than the planned final reserve fuel.

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

(17) Aeroplanes operated in accordance with the instrument flight rules shall comply with the instrument approach procedures approved by the State in which the aerodrome is located.

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

Duties of pilot-in-command.

(2) The pilot-in-command shall be responsible for ensuring that a flight—

- (a) shall not be commenced if any flight crew member is incapacitated from performing duties by any cause such as

injury, sickness, fatigue, the effects of any psychoactive substance; and

- (b) shall not be continued beyond the nearest suitable aerodrome when flight crew members' capacity to perform functions is significantly reduced by impairment of faculties from causes such as fatigue, sickness or lack of oxygen.

(3) The pilot-in-command shall be responsible for notifying the nearest appropriate authority by the quickest available means of any accident involving the aeroplane, resulting in serious injury or death of any person or substantial damage to the aeroplane or property.

13. The pilot-in-command shall ensure that all baggage carried onto an aeroplane and taken into the passenger cabin is securely stowed.

Cabin baggage  
(take-off and  
landing)

14. (1) An aeroplane shall be operated—

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

Aeroplane  
performance  
operating  
limitations.

(2) A flight shall not be commenced unless placards, listings, instrument markings, or combinations thereof, containing those operating limitations prescribed by the Authority for visual presentation, are displayed in the aeroplane.

(3) The pilot-in-command shall determine that aeroplane performance will permit the take-off and departure to be carried out safely.

15. In addition to the minimum equipment necessary for the issuance of a certificate of airworthiness, an aeroplane shall not fly unless the instruments, equipment and flight documents prescribed in the regulations hereunder are installed or carried, as appropriate, in aeroplanes according to the aeroplane use and to the circumstances under which the flight is to be conducted. The prescribed instruments and equipment, including their installation, shall be acceptable to the Authority.

Aeroplane  
instruments,  
equipment and  
flight documents.

16. (1) An aeroplane shall be equipped with instruments which will enable the flight crew to control the flight path of the aeroplane, carry out any required procedural manoeuvres and observe the operating limitations of the aeroplane in the expected operating conditions.

Aeroplanes on all  
flights.

(2) An aeroplane shall be equipped with or carry on board—

- (a) an accessible first-aid kit;
- (b) portable fire extinguishers of a type which, when discharged, will not cause dangerous contamination of the air within the aeroplane and at least one shall be located in—
  - (i) the pilot's compartment; and
  - (ii) each passenger compartment that is separate from the pilot's compartment and that is not readily accessible to the flight crew;
- (c) a seat or belt for each—
  - (i) person over the age of 24 months; and
  - (ii) seat and restraining belts for each berth;
- (d) the following manuals, charts and information—
  - (i) the flight manual or other documents or information concerning any operating limitations prescribed for the aeroplane by the Authority, required for the application of regulation 15;
  - (ii) any specific approval issued by the Authority, if applicable, for the operation(s) to be conducted;
  - (iii) current and suitable charts for the route of the proposed flight and all routes along which it is reasonable to expect that the flight may be diverted; and
  - (iv) the journey log book for the aeroplane; and
- (e) where the aeroplane is fitted with fuses that are accessible in flight, spare electrical fuses of appropriate ratings for replacement of those fuses.

(3) Any agent used in a built-in fire extinguisher for each lavatory disposal receptacle for towels, paper or waste in an aeroplane for which the individual certificate of airworthiness is first issued on or after 31<sup>st</sup> December, 2011 and any extinguishing agent used in a portable fire extinguisher in an aeroplane for which the individual certificate of airworthiness is first issued on or after the 31<sup>st</sup> December, 2018 shall meet the applicable minimum requirements in accordance with the Third Schedule to the Civil Aviation (Instruments and Equipment) Regulations.

(4) Aeroplanes on all flights should be equipped with the ground-air signal codes for search and rescue purposes.

(5) Aeroplanes on all flights should be equipped with a safety harness for each flight crewmember seat.

17. Marking for break-in by rescue crews in emergency situations shall conform to the requirements outlined in the Civil Aviation (Aircraft Nationality and Registration Marks) Regulations.

18. All aeroplanes when operated as VFR flights shall be—

Marking of break-in points.

All aeroplanes operated as VFR

- (a) equipped with a means of measuring and displaying— flights.
- (i) magnetic heading;
  - (ii) barometric altitude; and
  - (iii) indicated airspeed;
- (b) equipped with, or shall carry, a means of measuring and displaying time in hours, minutes and seconds;
- (c) equipped with such additional equipment as may be prescribed by the Authority; and
- (d) VFR flights which are operated as controlled flights should be equipped in accordance with regulation 22.

19. (1) Seaplanes for all flights shall be equipped with—

Aeroplanes on flights over water.

- (a) one life jacket, or equivalent individual floatation device, for each person on board, stowed in a position readily accessible from the seat or berth;
- (b) equipment for making the sound signals prescribed in the International Regulations for Preventing Collisions at Sea, where applicable;
- (c) one anchor; and
- (d) one sea anchor (drogue), when necessary to assist in maneuvering.

(2) All single-engined landplanes should carry one life jacket or equivalent individual floatation 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 when—

- (a) flying en route over water beyond gliding distance from the shore; or
- (b) taking off or landing at an aerodrome where, in the opinion of the pilot-in-command, the take-off or approach path is so disposed over water that in the event of a mishap there would be a likelihood of a ditching.

(3) All aeroplanes operated on extended flights over water shall be equipped with, at a minimum, one life jacket or equivalent individual floatation 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.

(4) The pilot-in-command of an aeroplane operated on an extended flight over water shall determine the risks to survival of the occupants of the aeroplane in the event of a ditching.

(5) The pilot-in-command shall take into account the operating environment and conditions such as, but not limited to, sea state and sea and air temperatures, the distance from land suitable for making an emergency landing, and the availability of search and rescue facilities.

(6) Based upon the assessment of the risks in sub-regulation (5), the pilot-in-command shall, in addition to the equipment required in regulation 20 ensure that the aeroplane is equipped with—

- (a) life-saving rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency, provided with such life-saving equipment, including means of sustaining life, as is appropriate to the flight to be undertaken and in accordance with the Civil Aviation (Instrument and Equipment) Regulations; and
- (b) equipment for making the distress signals described in the Civil Aviation (Rules of Air) Regulations.

20. Aeroplanes, when operated across land areas which have been designated by the Authority concerned as areas in which search and rescue would be especially difficult, shall be equipped with such signaling devices and life-saving equipment (including means of sustaining life) as may be appropriate to the area overflown.

Aeroplanes on flights over designated land areas.

21. (1) Aeroplanes intended to be operated at high altitudes shall be equipped with oxygen storage and dispensing apparatus capable of storing and dispensing the oxygen supplies required in regulation 9.

Aeroplanes on high altitude flights.

(2) Pressurised aeroplanes for which the individual certificate of airworthiness was first issued on or after the 1st January, 1990 shall not be operated at flight altitudes at which the atmospheric pressure is less than 376 hPa unless it is equipped with a device to provide positive warning to the flight crew of any dangerous loss of pressurisation.

22. All aeroplanes when operated in accordance with the instrument flight rules, or when the aeroplane cannot be maintained in a desired attitude without reference to one or more flight instruments, shall be—

All aeroplanes operated in accordance with the instrument flight rules.

- (a) equipped with a means of measuring and displaying—
  - (i) magnetic heading (standby compass);
  - (ii) barometric altitude;
  - (iii) indicated airspeed, with a means of preventing malfunctioning due to either condensation or icing;
  - (iv) turn and slip;
  - (v) aircraft attitude;
  - (vi) stabilized aircraft heading;
  - (vii) whether the supply of power to the gyroscopic instruments is adequate;
  - (viii) the outside air temperature; and
  - (ix) rate-of-climb and descent;
- (b) equipped with, or shall carry, a means of measuring and displaying time in hours, minutes and seconds; and

- (c) equipped with such additional instruments or equipment as may be prescribed by the appropriate authority.

23. A person shall not operate an aeroplane at night unless it is equipped with—

Aeroplanes when operated at night.

- (a) the equipment specified in regulation 22;
- (b) the lights required by the Civil Aviation (Rules of the Air) Regulations and as specified in the Second Schedule for aircraft in flight or operating on the movement area of an aerodrome;
- (c) a landing light;
- (d) illumination for all flight instruments and equipment that are essential for the safe operation of the aeroplane that are used by the flight crew;
- (e) lights in all passenger compartments; and
- (f) an independent portable light for each crew member station.

24. A person shall not operate an aeroplane unless there is carried on board a document attesting noise certification in accordance with the Civil Aviation (Airworthiness) Regulations.

Aeroplanes complying with the noise certification.

25. A person shall not operate an aeroplane with speed limitations expressed in terms of Mach number unless the aeroplane is equipped with a means of displaying Mach number.

Mach number indicator.

26. (1) A person shall not operate a turbine-engined aeroplane of maximum certificated take-off mass in excess of 5 700 kg or authorized to carry more than nine passengers unless the aeroplane is equipped with a ground proximity warning system which has a forward-looking terrain avoidance function.

Aeroplanes required to be equipped with Ground Proximity Warning Systems (GPWS).

(2) The ground proximity warning system required in sub-regulation (1) shall provide automatically a timely and distinctive warning to the flight crew when the aeroplane is in potentially hazardous proximity to the earth's surface.

(3) The ground proximity warning system required in sub-regulation (1) shall provide, at 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.

(4) The ground proximity warning system required in sub-regulation (1) contained in an aeroplane with an individual certificate of airworthiness that was first issued after the 1<sup>st</sup> 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 landing configuration;
- (e) gear not locked down;
- (f) flaps not in a landing position; and
- (g) excessive descent below the instrument glide path.

27. A person shall not operate an aeroplane unless it is equipped with —

- (a) at least one ELT of any type;
- (b) at least one automatic ELT for aeroplanes for which the individual certificate of airworthiness was first issued after the 1st July 2008; or
- (c) ELT equipment carried to satisfy the requirements of (a) and (b) above shall operate in accordance with the relevant provisions of Civil Aviation (Instruments and Equipment) Regulations.

Emergency Locator Transmitter (ELT).

28. When operating under the instrument flight rules all flight crew members required to be on flight deck duty shall communicate through boom or throat microphones below the transition level or altitude.

Microphones.

29. (1) A person shall not operate an aeroplane unless the aeroplane is equipped with a pressure-altitude reporting transponder which operates in accordance with the Civil Aviation (Instrument and Equipment) Regulations and Civil Aviation (Surveillance and Collision Avoidance Systems) Regulations.

Aeroplanes required to be equipped with a pressure-altitude reporting transponder.

(2) Unless exempted by the Authority, no person shall undertake VFR flights with an aeroplane unless the aeroplane is equipped with a pressure-altitude reporting transponder which operates in accordance with the Civil Aviation (Instrument and Equipment) Regulations and Civil Aviation (Surveillance and Collision Avoidance Systems) Regulations.

30. (1) The Authority shall establish acriteria for the safe operations of aeroplanes equipped with automatic landing systems, a HUD or equivalent displays, EVS, SVS or CVS, or any combination of those systems into a hybrid system.

Aeroplanes equipped with automatic landing systems, a Head-Up Display (HUD) or equivalent displays, Enhanced Vision Systems (EVS), Synthetic Vision Systems (SVS) or Combined Vision Systems (CVS).

(2) In establishing operational criteria for the use of automatic landing systems, a HUD or equivalent displays, EVS, SVS or CVS, the Authority shall ensure that—

- (a) the equipment meets the appropriate airworthiness certification requirements;

- (b) the operator or owner has carried out a safety risk assessment associated with the operations supported by the automatic landing systems, a HUD or equivalent displays, EVS, SVS or CVS;
- (c) the operator or owner has established and documented the procedures for the use of, and training requirements for, automatic landing systems, a HUD or equivalent displays, EVS, SVS or CVS.

31. (1) Flight Data Recorders ('FDRs') are of the following types—

- (a) types I and IA FDRs shall record the parameters required to determine accurately the aeroplane flight path, speed, attitude, engine power, configuration and operation; and
- (b) type II FDRs shall record the parameters required to determine accurately the aeroplane flight path, speed, attitude, engine power and configuration of lift and drag devices.

Flight data recorders and aircraft data recording system

(2) A person shall not operate an aeroplane for which the application for type certification is submitted to a Contracting State on or after the 1<sup>st</sup> January 2016, and which are required to be fitted with an FDR shall record the pilot input or control surface position and primary controls (pitch, roll, yaw) parameters at a maximum recording interval of 0.125 seconds.

(3) A person shall not operate an aeroplane equipped with FDRs of the following types —

- (a) engraving metal foil FDRs;
- (b) analogue FDRs using frequency modulation (FM);
- (c) photographic film FDRs; and
- (d) magnetic tape FDRs.

(4) All FDRs shall be capable of retaining the information recorded during at least the last 25 hours of their operation.

32. (1) Magnetic tape and wire CVRs are prohibited.

(2) All CVRs shall be capable of retaining the information recorded during at least the last 30 minutes of their operation.

(3) All CVRs shall be capable of retaining the information recorded during at least the last two hours of their operation.

Cockpit voice recorders and cockpit audio recording systems.

33. (1) All aeroplanes for which the individual certificate of airworthiness is first issued on or after the 1st January, 2016, which utilize any of the data link communications applications listed in 5.1.2 of the Third Schedule and are required to carry a Cockpit Voice Recorder (CVR), shall record on a flight recorder all data link communications messages.

Applicability of data link recorders.

(2) All aeroplanes which are modified on or after 1<sup>st</sup> January 2016 to install and utilize any of the data link communications applications

listed in 5.1.2 of the Third Schedule and are required to carry a CVR shall record on a flight recorder the data link communications messages.

(3) Data link recording shall be able to be correlated to the recorded cockpit audio.

(4) The minimum recording duration shall be equal to the duration of the CVR.

34. (1) Flight recorders shall 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 and flight recorders shall meet the prescribed crashworthiness and fire protection specifications.

Flight recorders:  
General.

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

(3) To preserve flight recorder records, flight recorders shall be deactivated upon completion of flight time following an accident or incident and the flight recorders shall not be reactivated before their disposition.

(4) The pilot-in-command or the owner or operator, shall ensure, to the extent possible, in the event the aeroplane becomes involved in an accident or incident, the preservation of all related flight recorder records, and if necessary the associated flight recorders, and their retention in safe custody pending their disposition as determined in accordance with Civil Aviation (Aircraft Accident and Incident) Regulations.

(5) Operational checks and evaluations of recordings from the flight recorder systems shall be conducted to ensure the continued serviceability of the recorders.

35. (1) Where portable Electronic Flight Bags ('EFBs') are used on board an aeroplane, the pilot-in-command or the operator or owner shall ensure that they do not affect the performance of the aeroplane systems, equipment or the ability to operate the aeroplane.

Electronic Flight  
Bags (EFBs).

(2) Where EFBs are used on board an aeroplane the pilot-in-command, the owner or operator of the aeroplane shall—

- (a) assess the safety risk(s) associated with each EFB function;
- (b) establish the procedures for the use of, and training requirements for, the device and each EFB function; and
- (c) ensure that, in the event of an EFB failure, sufficient information is readily available to the flight crew for the flight to be conducted safely.

(3) The Authority shall establish criteria for the operational use of EFB functions to be used for the safe operation of aeroplanes.

(4) In establishing operational criteria for the use of EFBs, the Authority shall ensure that—

- (a) the EFB equipment and its associated installation hardware, including interaction with aeroplane systems if applicable, meet the appropriate airworthiness certification requirements;

- (b) the operator or owner has assessed the risks associated with the operations supported by the EFB function(s);
- (c) the operator or owner has established requirements for redundancy of the information (if appropriate) contained in and displayed by the EFB function(s);
- (d) the operator or owner has established and documented procedures for the management of the EFB function(s) including any databases it may use; and
- (e) the operator or owner has established and documented the procedures for the use of, and training requirements for, the EFB function(s).

#### AEROPLANE COMMUNICATION, NAVIGATION AND SURVEILLANCE EQUIPMENT

36. (1) An aeroplane to be operated in accordance with the instrument flight rules or at night shall be provided with radio communication equipment in accordance with the Kenya Civil Aviation (Instrument and Equipment) Regulations and such equipment shall be capable of conducting two-way communication with those aeronautical stations and on those frequencies prescribed by the Authority.

Communication equipment.

(2) When compliance with regulation 37 requires that more than one communication equipment unit be provided, each shall be independent of the other or others to the extent that a failure in any one will not result in failure of any other.

(3) An aeroplane to be operated in accordance with VFR, but as a controlled flight, shall, unless exempted by the appropriate authority, be provided with radio communication equipment capable of conducting two-way communication at any time during flight with such aeronautical stations and on such frequencies as may be prescribed by the appropriate Authority.

(4) An aeroplane to be operated on a flight to which the provisions of Regulation 20 or 21 apply shall, unless exempted by the Authority, be provided with radio communication equipment capable of conducting two-way communication at any time during flight with such aeronautical stations and on such frequencies as may be prescribed by the Authority.

(5) The radio communication equipment required in accordance with regulation 37 shall provide for communication on the aeronautical emergency frequency 121.5 MHz.

(6) For operations where communication equipment is required to meet an RCP specification for Performance-Based Communication (PBC), an aeroplane shall, in addition to the requirements specified in regulation 37—

- (a) be provided with communication equipment which will enable it to operate in accordance with the prescribed RCP specification(s);

- (b) have information relevant to the aeroplane RCP specification capabilities listed in the flight manual or other aeroplane documentation approved by the State of Design or the Authority; and
- (c) where the aeroplane is operated in accordance with a MEL, have information relevant to the aeroplane RCP specification capabilities included in the MEL.

(7) The Authority shall establish criteria for operations where an RCP specification for PBC has been prescribed.

37. (1) An aeroplane shall be provided with navigation equipment which will enable it to proceed—

Navigation  
equipment.

- (a) in accordance with its flight plan; and
- (b) in accordance with the requirements of air traffic services;

except when, if not so precluded by the Authority, navigation for flights under VFR is accomplished by visual reference to landmarks.

(2) For operations where a navigation specification for performance-based navigation (PBN) has been prescribed, an aeroplane shall, in addition to the requirements specified in sub-regulation (1) —

- (a) be provided with navigation equipment which will enable it to operate in accordance with the prescribed navigation specification(s); and
- (b) have information relevant to the aeroplane navigation specification capabilities listed in the flight manual or other aeroplane documentation approved by the State of Design or the Authority; and
- (c) where the aeroplane is operated in accordance with a MEL, have information relevant to the aeroplane navigation specification capabilities included in the MEL.

(3) The Authority shall establish criteria for operations where a navigation specification for PBN has been prescribed.

(4) In establishing criteria for operations where a navigation specification for PBN has been prescribed, the Authority shall require that the operator or owner establish—

- (a) normal and abnormal procedures including contingency procedures;
- (b) flight crew qualification and proficiency requirements, in accordance with the appropriate navigation specifications;
- (c) training for relevant personnel consistent with the intended operations; and
- (d) appropriate maintenance procedures to ensure continued airworthiness, in accordance with the appropriate navigation specifications.

(5) The Authority shall issue a specific approval for operations based on PBN authorization required (AR) navigation specifications.

(6) A person shall not operate an aeroplane in defined portions of airspace where, based on Regional Air Navigation Agreement, minimum navigation performance specifications (MNPS) are prescribed, unless the aeroplane is provided with navigation equipment which—

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

(7) A person shall not operate an aeroplane in defined portions of airspace where, based on Regional Air Navigation Agreement, a reduced vertical separation minimum (RVSM) of 300 m (1 000 ft) is applied between FL 290 and FL 410 inclusive, unless the aeroplane—

- (a) is provided with equipment which is capable of—
  - (i) indicating to the flight crew the flight level being flown;
  - (ii) automatically maintaining a selected flight level;
  - (iii) providing an alert to the flight crew when a deviation occurs from the selected flight level. The threshold for the alert shall not exceed  $\pm 90$  m (300 ft); and
  - (iv) automatically reporting pressure-altitude;
- (b) is authorized by the Authority for operation in the airspace concerned; and
- (c) demonstrates a vertical navigation performance in accordance with Second Schedule.

(8) Prior to granting the RVSM approval required in accordance with sub-regulation (7)(b) the Authority shall be satisfied that—

- (a) the vertical navigation performance capability of the aeroplane satisfies the requirements specified in Second Schedule;
- (b) the owner or operator has instituted appropriate procedures in respect of continued airworthiness (maintenance and repair) practices and programmes; and
- (c) the owner or operator has instituted appropriate flight crew procedures for operations in RVSM airspace.

(9) The Authority shall ensure that, in respect of those aeroplanes mentioned in sub-regulation (7), adequate provisions exist for—

- (a) receiving the reports of height-keeping performance issued by the monitoring agencies established in accordance with Civil Aviation (Air Navigation Services) Regulations; and
- (b) taking immediate corrective action for individual aircraft, or aircraft type groups, identified in such reports as not complying with the height-keeping requirements for operation in airspace where RVSM is applied.

(10) The Authority shall establish a requirement which ensures that a minimum of two aeroplanes of each aircraft type grouping of the owner or operator have their height-keeping performance monitored, at least once every two years or within intervals of 1 000 flight hours per aeroplane, whichever period is longer.

(11) If an owner or operator aircraft type grouping consists of a single aeroplane, monitoring of that aeroplane shall be accomplished within the specified period.

(12) The Authority, shall establish provisions and procedures which ensure that appropriate action will be taken in respect of aircraft and owners or operators found to be operating in RVSM airspace without a valid RVSM approval.

(13) The aeroplane shall be sufficiently provided 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 sub-regulation (1) and where applicable sub-regulation (2), (6) and (7).

(14) On flights in which it is intended to land in instrument meteorological conditions, an aeroplane shall be provided with radio equipment capable of receiving signals providing guidance to a point from which a visual landing can be effected and this equipment shall be capable of providing such guidance for each aerodrome at which it is intended to land in instrument meteorological conditions and for any designated alternate aerodromes.

38. (1) A person shall not operate an aeroplane unless the aeroplane is provided with surveillance equipment that will enable it to operate in accordance with the requirements of air traffic services.

Surveillance  
equipment.

(2) A person shall not undertake operations of an aeroplane where surveillance equipment is required to meet an RSP specification for performance-based surveillance (PBS) unless—

- (a) the aeroplane in addition to the requirements specified in sub-regulation (1) is provided with surveillance equipment which will enable it to operate in accordance with the prescribed RSP specification(s);
- (b) has information relevant to the aeroplane RSP specification capabilities listed in the flight manual or other aeroplane documentation approved by the State of Design or the Authority; and
- (c) where the aeroplane is operated in accordance with a MEL, has information relevant to the aeroplane RSP specification capabilities included in the MEL.

(3) The Authority shall establish criteria for operations where an RSP specification for PBS has been prescribed.

(4) In establishing criteria for operations where an RSP specification for PBS has been prescribed, the Authority shall require that the operator or the owner establish—

- (a) normal and abnormal procedures, including contingency procedures;
- (b) flight crew qualification and proficiency requirements, in accordance with appropriate RSP specifications;
- (c) a training programme for relevant personnel consistent with the intended operations; and
- (d) appropriate maintenance procedures to ensure continued airworthiness, in accordance with appropriate RSP specifications.

(5) The Authority shall ensure that, in respect of those aeroplanes mentioned in Regulation 39 (2), adequate provisions exist for—

- (a) receiving the reports of observed surveillance performance issued by monitoring programmes established in accordance with Civil Aviation (Air Traffic Services) Regulations, 2018; and
- (b) taking immediate corrective action for individual aircraft, aircraft types or operators, identified in such reports as not complying with the RSP specification(s).

#### AEROPLANE MAINTENANCE

39. (1) The owner of an aeroplane, or operator shall ensure that, in accordance with procedures acceptable to the Authority—

Owner's  
maintenance  
responsibilities.

- (a) the aeroplane is maintained in an airworthy condition;
- (b) the operational and emergency equipment necessary for an intended flight is serviceable; and
- (c) the certificate of airworthiness of the aeroplane remains valid.

(2) The owner or operator shall not operate the aeroplane unless it is maintained and released to service under a system acceptable to the Authority.

(3) When the certificate of release to service is not issued by an approved maintenance organization in accordance with the Civil Aviation (Airworthiness Regulations), the person signing the certificate of release to service should be licensed in accordance with Civil Aviation (Personnel Licensing Regulations).

(4) The owner or operator shall ensure that the maintenance of the aeroplane is performed in accordance with a maintenance programme acceptable to the Authority.

40. (1) The owner of an aeroplane, or the operator, shall ensure that the following records are kept for the periods mentioned in sub-regulation (2) —

Maintenance  
records.

- (a) the total time in service (hours, calendar time and cycles, as appropriate) of the aeroplane and all life-limited components;

- (b) the current status of compliance with all applicable mandatory continuing airworthiness information;
- (c) appropriate details of modifications and repairs;
- (d) the time in service (hours, calendar time and cycles, as appropriate) since the last overhaul of the aeroplane or its components subject to a mandatory overhaul life;
- (e) the current status of the aeroplane's compliance with the maintenance programme; and
- (f) the detailed maintenance records to show that all requirements for the signing of a certificate of release to service have been met.

(2) The records in sub-regulation (1)(a) to (e) shall be kept for a minimum period of 90 days after the unit to which they refer has been permanently withdrawn from service and the records in sub-regulation (1)(f) for a minimum period of one year after the signing of the certificate of release to service.

(3) In the event of a temporary change of owner or operator, the records shall be made available to the new owner or operator. In the event of any permanent change of owner or operator, the records shall be transferred to the new owner or operator.

41. (1) A person shall not perform modifications and repairs to an aircraft unless those modification and repairs comply with airworthiness requirements acceptable to the Authority.

Modifications and repairs.

(2) An operator shall—

- (a) establish the procedures to ensure that records supporting compliance with the airworthiness requirements are retained;
- (b) ensure that major repairs or major modifications are carried out in accordance with technical data acceptable to the Authority;
- (c) promptly, upon completion of a major modification or major repair, prepare a report of each major modification or major repair of an airframe, aircraft engine, propeller or appliance of an aircraft operated by the operator; and
- (d) submit a copy of each report of a major modification and repair to the Authority and keep a copy of each report of a major repair and modification available for inspection.

42. A person shall not operate an aeroplane unless the aeroplane has a valid certificate of release to service—

Certificate of release to service.

- (a) completed and signed, as prescribed by the Authority, to certify that the maintenance work performed has been completed satisfactorily and in accordance with data and procedures acceptable to the Authority.
- (b) contains a certification including—

- (i) basic details of the maintenance performed;
- (ii) the date such maintenance was completed;
- (iii) when applicable, the identity of the approved maintenance organization; and
- (iv) the identity of the authorized person or persons signing the release.

#### AEROPLANE FLIGHT CREW

43. A person shall not operate an aeroplane unless the number and composition of the flight crew are not be less than that specified in the flight manual or other documents associated with the certificate of airworthiness.

Composition of the flight crew.

44. (1) The pilot-in-command shall—

Qualifications.

- (a) ensure that each flight crew member holds a valid licence issued by the Authority, or if issued by another Contracting State, rendered valid by the Authority;
- (b) ensure that flight crew members are properly rated; and
- (c) be satisfied that flight crew members have maintained competency.

(2) The pilot-in-command of an aeroplane equipped with an airborne collision avoidance system (ACAS II) shall ensure that each flight crew member has been appropriately trained to competency in the use of ACAS II equipment and the avoidance of collision.

#### MANUALS, LOGS AND RECORDS

45. (1) A person shall not operate an aeroplane registered in Kenya unless there is available in the aeroplane—

Flight manual.

(a) a current Aeroplane Flight Manual accepted by the Authority; or

(b) a current accepted Pilot Operating Handbook or Owner's manual, markings and placards, or any combination thereof which provide the pilot-in-command with the necessary limitations for safe operation.

(2) A person shall not operate an aircraft within or over Kenya without complying with the operating limitations specified in sub-regulation (1).

(3) The Aeroplane Flight Manual shall be updated by implementing changes made mandatory by the Authority.

46. (1) The operator shall ensure a journey log book is maintained for every aeroplane engaged in air navigation in which particulars of the aeroplane, its crew and each journey is entered.

Journey log book.

(2) The aeroplane journey log should contain the following items—

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

47. The owner of an aeroplane, or operator, shall at all times have available for immediate communication to rescue coordination centres, lists containing information on the emergency and survival equipment carried on board the aeroplane. The information shall include, as applicable, the number, colour and type of life rafts and pyrotechnics, details of emergency medical supplies, water supplies and the type and frequencies of the emergency portable radio equipment.

Records of emergency and survival equipment carried.

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

Security of aeroplane.

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

Reporting acts of unlawful interference.

### PART III—LARGE AND TURBOJET AEROPLANES

50. This part shall be applicable to—

Applicability.

- (a) general aviation operations for—
  - (i) aeroplanes with a maximum certificated take-off mass exceeding 5 700 kg;
  - (ii) aeroplanes equipped with one or more turbojet engines; or
  - (iii) aeroplanes with a sitting configuration of more than nine passenger seats; and
- (b) corporate aviation operations involving three or more aircraft that are operated by pilots employed for the purpose of flying the aircraft.

### CORPORATE AVIATION OPERATIONS

51. (1) The operator shall ensure that all employees know that they must comply with the laws, regulations and procedures of those States in which operations are conducted.

Compliance with laws, regulations and procedures.

(2) The operator shall ensure that all pilots are familiar with the laws, regulations and procedures, pertinent to the performance of their duties, prescribed for the areas to be traversed, the aerodromes to be used and the air navigation facilities relating thereto and the operator shall ensure that other members of the flight crew are familiar with such of these laws, regulations and procedures as are pertinent to the performance of their respective duties in the operation of the aeroplane.

(3) The pilot-in-command shall be responsible for operational control and the operator shall describe the operational control system in the operations manual and identify the roles and responsibilities of those involved with the system.

(4) The operator shall ensure that the pilot-in-command has available on board the aeroplane all the essential information concerning the search and rescue services in the area over which the aeroplane shall be flown.

(5) The operator shall ensure that flight crew members demonstrate the ability to speak and understand the language used for aeronautical radiotelephony communications as specified in Civil Aviation (Personnel Licensing) Regulations.

52. An operator shall establish and maintain a safety management system that is appropriate to the size and complexity of the operation in accordance with the Civil Aviation (Safety Management) Regulations.

Safety  
management.

#### FLIGHT OPERATIONS

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

Operating  
facilities.

54. (1) If an operator has an operating base in a country other than Kenya, the operator shall notify that State in which the operating base is located.

Operational  
management.

(2) Upon notification in accordance with sub-regulation (1), safety and security oversight shall be coordinated between the State in which the operating base is located and the Authority

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

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

(5) The operator shall issue operating instructions and provide information on aeroplane climb performance with all engines operating to enable the pilot-in-command to determine the climb gradient that can be achieved during the departure phase for the existing take-off conditions and intended take-off technique and this information shall be included in the operations manual.

(6) The operator shall ensure that when passengers are being carried, no emergency or abnormal situations shall be simulated.

(7) Checklists shall be used by flight crews prior to, during and after all phases of operations, and in emergencies, to ensure compliance with the operating procedures contained in the aircraft operating manual and the aeroplane flight manual or other documents associated with the certificate of airworthiness and otherwise in the operations manual and the design and utilization of checklists shall observe Human Factors principles and the operator shall specify, for flights which are to be conducted in accordance with the instrument flight rules, the method of establishing terrain clearance altitudes.

(8) The operator shall establish aerodrome operating minima, in accordance with criteria specified by the Authority, for each aerodrome to be used in operations and such minima shall not be lower than any that may be established for such aerodromes by the State of the Aerodrome, except when specifically approved by that State.

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

(10) The operator shall ensure that passengers are made familiar with the location and use of—

- (a) seat belts;
- (b) emergency exits;
- (c) life jackets, if the carriage of life jackets is prescribed;
- (d) oxygen dispensing equipment, if the provision of oxygen for the use of passengers is prescribed; and
- (e) other emergency equipment provided for individual use, including passenger emergency briefing cards.

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

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

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

55. (1) The operator shall develop procedures to ensure that a flight is not commenced unless— Flight preparation.

- (a) the aeroplane is airworthy, duly registered and that appropriate certificates with respect thereto are aboard the aeroplane;

- (b) the instruments and equipment installed in the aeroplane are appropriate, taking into account the expected flight conditions;
- (c) any necessary maintenance has been performed in accordance with Regulations 76 to 80;
- (d) the mass of the aeroplane and centre of gravity location are such that the flight can be conducted safely, taking into account the flight conditions expected;
- (e) any load carried is properly distributed and safely secured; and
- (f) the aeroplane operating limitations, contained in the flight manual, or its equivalent, is not exceeded.

(2) The operator shall make available sufficient information on climb performance with all engines operating to enable determination of the climb gradient that can be achieved during the departure phase for the existing take-off conditions and intended take-off technique.

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

(4) A take-off alternate aerodrome shall be selected and specified in the flight plan if either the meteorological conditions at the aerodrome of departure are below the applicable aerodrome landing minima for that operation or if it would not be possible to return to the aerodrome of departure for other reasons.

(5) The take-off alternate aerodrome shall be located within the following flight time from the aerodrome of departure—

- (a) or aeroplanes with two engines, one hour of flight time at a one-engine-inoperative cruising speed, determined from the aircraft operating manual, calculated in ISA and still-air conditions using the actual take-off mass; or
- (b) for aeroplanes with three or more engines two hours of flight time at an all engines operating cruising speed, determined from the aircraft operating manual, calculated in ISA and still-air conditions using the actual take-off mass.

(6) For an aerodrome to be selected as a take-off alternate the available information shall indicate that, at the estimated time of use, the conditions will be at or above the applicable aerodrome operating minima for that operation.

(7) An aeroplane shall carry a sufficient amount of usable fuel to complete the planned flight safely and to allow for deviations from the planned operation.

- (8) The amount of usable fuel to be carried shall, as a minimum, be based on—
- (a) fuel consumption data—
    - (i) provided by the aeroplane manufacturer; or
    - (ii) if available, current aeroplane-specific data derived from a fuel consumption monitoring system; and
  - (b) the operating conditions for the planned flight including—
    - (i) anticipated aeroplane mass;
    - (ii) notices to airmen;
    - (iii) current meteorological reports or a combination of current reports and forecasts;
    - (iv) air traffic services procedures, restrictions and anticipated delays; and
    - (v) the effects of deferred maintenance items or configuration deviations.
- (9) The pre-flight calculation of usable fuel required shall include—
- (a) taxi fuel, which shall be the amount of fuel expected to be consumed before take-off taking into account local conditions at the departure aerodrome and auxiliary power unit (APU) fuel consumption;
  - (b) trip fuel, which shall be the amount of fuel required to enable the aeroplane to fly from take-off until landing at the destination aerodrome taking into account the operating conditions of sub-regulation (5)(b);
  - (c) contingency fuel, which shall be the amount of fuel required to compensate for unforeseen factors and it shall be not less than five per cent of the planned trip fuel;
  - (d) destination alternate fuel, which shall be, where a destination alternate aerodrome is required, the amount of fuel required to enable the aeroplane to—
    - (i) inform a missed approach at the destination aerodrome;
    - (ii) climb to the expected cruising altitude;
    - (iii) fly the expected routing;
    - (iv) descend to the point where the expected approach is initiated; and
    - (v) conduct the approach and landing at the destination alternate aerodrome; or
  - (e) where a flight is operated without a destination alternate aerodrome, the amount of fuel required to enable the aeroplane to fly for 15 minutes at holding speed at 450 m (1

500 ft) above destination aerodrome elevation in standard conditions; or

- (f) where the aerodrome of intended landing is an isolated aerodrome—
  - (i) for a reciprocating engine aeroplane, the amount of fuel required to fly for 45 minutes plus 15 per cent of the flight time planned to be spent at cruising level, including final reserve fuel, or two hours, whichever is less; or
  - (ii) for a turbine-engined aeroplane, the amount of fuel required to fly for two hours at normal cruise consumption above the destination aerodrome, including final reserve fuel;
- (g) final reserve fuel, which shall be the amount of fuel on arrival at the destination alternate aerodrome, or the destination aerodrome when no destination alternate aerodrome is required—
  - (i) for a reciprocating engine aeroplane, the amount of fuel required to fly for 45 minutes; or
  - (ii) for a turbine-engined aeroplane, the amount of fuel required to fly for 30 minutes at holding speed at 450 m (1 500 ft) above aerodrome elevation in standard conditions;
- (h) additional fuel, which shall be the supplementary amount of fuel required to enable the aircraft to descend as necessary and proceed to land at an alternate aerodrome in the event of engine failure or loss of pressurization based on the assumption that such a failure occurs at the most critical point along the route; and
- (i) discretionary fuel, which shall be the extra amount of fuel to be carried at the discretion of the pilot-in-command.

(10) Operators should determine one final reserve fuel value for each aeroplane type and variant in their fleet rounded up to an easily recalled figure.

(11) The use of fuel after flight commencement for purposes other than originally intended during pre-flight planning shall require a re-analysis and, if applicable, adjustment of the planned operation.

(12) The operator shall establish policies and procedures to ensure that in-flight fuel checks and fuel management are performed.

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

(14) The pilot-in-command shall request delay information from ATC when unanticipated circumstances may result in landing at the

destination aerodrome with less than the final reserve fuel plus any fuel required to proceed to an alternate aerodrome or the fuel required to operate to an isolated aerodrome.

(15) The pilot-in-command shall advise ATC of a minimum fuel state by declaring MINIMUM FUEL when, having committed to land at a specific aerodrome, the pilot calculates that any change to the existing clearance to that aerodrome may result in landing with less than the planned final reserve fuel.

(16) The pilot-in-command shall declare a situation of fuel emergency by broadcasting MAYDAY MAYDAYMAYDAY FUEL when the calculated usable fuel estimated to be available upon landing at the nearest aerodrome where a safe landing can be made is less than the planned final reserve fuel.

(17) When conducting operations beyond 60 minutes from a point on a route to an en-route alternate aerodrome operators should ensure that—

- (a) en-route alternate aerodromes are identified; and
- (b) the pilot-in-command has access to current information on the identified en-route alternate aerodromes, including operational status and meteorological conditions.

(18) An aeroplane shall not be re-fuelled when passengers are embarking, on board or disembarking unless it is properly attended by qualified personnel ready to initiate and direct an evacuation of the aeroplane by the most practical and expeditious means available.

(19) When re-fuelling with passengers embarking, on board or disembarking, two-way communication shall be maintained by the aeroplane's intercommunication system or other suitable means between the ground crew supervising the re-fuelling and the qualified personnel on board the aeroplane.

(20) A flight to be operated at flight altitudes at which the atmospheric pressure in personnel compartments will be less than 700 hPa shall not be commenced unless sufficient stored breathing oxygen is carried to supply—

- (a) all crew members and 10 per cent of the passengers for any period in excess of 30 minutes that the pressure in compartments occupied by them will be between 700 hPa and 620 hPa; and
- (b) the crew and passengers for any period that the atmospheric pressure in compartments occupied by them will be less than 620 hPa;

(21) A flight to be operated with a pressurized aeroplane shall not be commenced unless a sufficient quantity of stored breathing oxygen is carried to supply all the crew members and passengers, as is appropriate to the circumstances of the flight being undertaken, in the event of loss of pressurization, for any period that the atmospheric pressure in any compartment occupied by them would be less than 700

hPa. and in addition, when an aeroplane is operated at flight altitudes at which the atmospheric pressure is less than 376 hPa, or which, if operated at flight altitudes at which the atmospheric pressure is more than 376 hPa and cannot descend safely within four minutes to a flight altitude at which the atmospheric pressure is equal to 620 hPa, there shall be no less than a 10-minute supply for the occupants of the passenger compartment.

56. (1) In the aircraft operating manual recommended the operator shall include operating procedures for conducting instrument approaches.

In-flight  
procedures.

(2) All flight crew members, when engaged in performing duties essential to the safe operation of an aeroplane in flight, shall use breathing oxygen continuously whenever the circumstances prevail for which its supply has been required in or under regulation 11(5).

(3) All flight crew members of pressurized aeroplanes operating above an altitude where the atmospheric pressure is less than 376 hPa shall have available at the flight duty station a quick-donning type of oxygen mask which will readily supply oxygen upon demand.

(4) Unless otherwise specified in an air traffic control instruction, to avoid unnecessary airborne collision avoidance system (ACAS II) resolution advisories in aircraft at or approaching adjacent altitudes or flight levels, pilots should consider using appropriate procedures to ensure that a rate of climb or descent of less than 8 m/s or 1500 ft/min (depending on the instrumentation available) is achieved throughout the last 300 m (1 000 ft) of climb or descent to the assigned altitude or flight level, when made aware of another aircraft at or approaching an adjacent altitude or flight level.

57. (1) The pilot-in-command shall ensure that the checklists specified in regulation (54) (7) are complied with in detail.

Duties of pilot-in-  
command.

(2) The pilot-in-command shall be responsible for notifying the nearest appropriate authority by the quickest available means of any accident involving the aeroplane, resulting in serious injury or death of any person or substantial damage to the aeroplane or property and in the event that the pilot-in-command is incapacitated the operator shall take the forgoing action.

(3) The pilot-in-command shall be responsible for reporting all known or suspected defects in the aeroplane, to the operator, at the termination of the flight.

(4) The pilot-in-command shall be responsible for the journey log book or the general declaration containing the information listed in regulation 40.

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

Cabin baggage  
(take-off and  
landing).

#### AEROPLANE PERFORMANCE OPERATING LIMITATIONS

59. (1) The Standards contained in sub-regulations (2) to (5) of this regulation are applicable to aeroplanes over 5 700 kg certificated

Applicability.

on or after 13 June 1960, in accordance with Civil Aviation (Airworthiness) Regulations.

(2) An aeroplane shall be operated in compliance with the terms of its certificate of airworthiness and within the approved operating limitations contained in its flight manual.

(3) The Authority shall take such precautions as are reasonably possible to ensure that the general level of safety contemplated by these provisions is maintained under all expected operating conditions, including those not covered specifically by the provisions of this Part.

(4) A person shall not commence a flight unless the performance information provided in the flight manual indicates that sub-regulations (2) to (5) can be complied with for the flight to be undertaken.

(5) In applying the Standards of this Part, account shall be taken of all factors that significantly affect the performance of the aeroplane (such as: mass, operating procedures, the pressure altitude appropriate to the elevation of the aerodrome, temperature, wind, runway gradient and condition of runway, that is, presence of slush, water or ice, for landplanes, water surface condition for seaplanes) and such factors shall be taken into account directly as operational parameters or indirectly by means of allowances or margins, which may be provided in the scheduling of performance data or in the comprehensive and detailed code of performance in accordance with which the aeroplane is being operated.

60. (1) The mass of the aeroplane at the start of take-off shall not exceed the mass at which sub-regulation (2) is complied with, or the mass at which sub-regulation (3) and sub-regulation (4) are complied with, allowing for expected reductions in mass as the flight proceeds, and for such fuel jettisoning as is envisaged in applying sub-regulation (3) and sub-regulation (4) and, in respect of alternate aerodromes.

Mass limitations  
take off.

(2) In no case shall the mass at the start of take-off exceed the maximum take-off mass specified in the flight manual for the pressure altitude appropriate to the elevation of the aerodrome, and if used as a parameter to determine the maximum take-off mass, any other local atmospheric condition.

(3) In no case shall the estimated mass for the expected time of landing at the aerodrome of intended landing and at any destination alternate aerodrome, exceed the maximum landing mass specified in the flight manual for the pressure altitude appropriate to the elevation of those aerodromes, and if used as a parameter to determine the maximum landing mass, any other local atmospheric condition.

(4) In no case shall the mass at the start of take-off, or at the expected time of landing at the aerodrome of intended landing and at any destination alternate aerodrome, exceed the relevant maximum masses at which compliance has been demonstrated with the Civil Aviation (Airworthiness) Regulations, unless otherwise authorized in exceptional circumstances for a certain aerodrome or a runway where there is no noise disturbance problem, by the competent authority of the State in which the aerodrome is situated.

(5) The pilot in command shall ensure that the aeroplane is able, in the event of a critical engine failing at any point in the take-off, either to discontinue the take-off and stop within either the accelerate-stop distance available or the runway available, or to continue the take-off and clear all obstacles along the flight path by an adequate margin until the aeroplane is in a position to comply with sub-regulation (8).

(6) The pilot in command in determining the length of the runway available, shall take account of the loss, if any, of runway length due to alignment of the aeroplane prior to take-off.

(7) The pilot in command shall ensure that in the event of the critical engine becoming inoperative at any point along the route or planned diversions therefrom, to continue the flight to an aerodrome at which the standard of sub-regulation (9) can be met, without flying below the minimum obstacle clearance altitude at any point.

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

#### AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

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

General.

(2) The operator shall provide operations staff and flight crew with an aircraft operating manual, for each aircraft type operated, containing the normal, abnormal and emergency procedures relating to the operation of the aircraft and the manual shall be consistent with the aircraft flight manual and checklists to be used and the design of the manual shall observe Human Factors principles.

62. (1) In addition to the requirements contained in regulation 16(2), the operator shall ensure that the aeroplane is equipped with—

Aeroplanes on all flights.

- (a) accessible and adequate medical supplies in accordance to the Civil Aviation (Instrument and Equipment) Regulations, appropriate to the number of passengers the aeroplane is authorized to carry;
- (b) a safety harness for each flight crew seat and the safety harness for each pilot seat which shall incorporate a device which will automatically restrain the occupant's torso in the event of rapid deceleration and the safety harness for each

pilot seat shall incorporate a device to prevent a suddenly incapacitated pilot from interfering with the flight control; and

- (c) means of ensuring that the following information and instructions are conveyed to passengers—
- (i) when seat belts are to be fastened;
  - (ii) when and how oxygen equipment is to be used if the carriage of oxygen is required;
  - (iii) restrictions on smoking;
  - (iv) location and use of life jackets or equivalent individual flotation devices where their carriage is required;
  - (v) location of emergency equipment; and
  - (vi) location and method of opening emergency exits.

(2) The pilot-in-command shall ensure that the aeroplane carries on board —

- (a) the operations manual prescribed in regulation 77, or those parts of it that pertain to flight operations;
- (b) the flight manual for the aeroplane, or other documents containing performance data required for the application of regulation 61 and any other information necessary for the operation of the aeroplane within the terms of its certificate of airworthiness, unless these data are available in the operations manual; and
- (c) the checklists to which regulation (54) refers.

63. (1) A person shall not operate an aeroplane of a maximum certificated take-off mass of over 5 700 kg for which the individual certificate of airworthiness was first issued on or after the 1<sup>st</sup> January 2005 unless the aeroplane is equipped with a Type IA FDR.

Flight data recorders.

(2) A person shall not operate an aeroplane of a maximum certificated take-off mass of over 27 000 kg for which the individual certificate of airworthiness was first issued on or after 1<sup>st</sup> January 1989 unless the aeroplane is equipped with a Type I FDR.

(3) All aeroplanes of a maximum certificated take-off mass of over 5 700 kg, up to and including 27 000 kg, for which the individual certificate of airworthiness is first issued on or after the 1<sup>st</sup> January 1989, shall be equipped with a Type II FDR.

64. (1) A person shall not operate a turbine-engined aeroplane of a maximum certificated take-off mass of over 5 700 kg for which the application for type certification was submitted to a Contracting State on or after the 1<sup>st</sup> January, 2016 and required to be operated by more than one pilot unless the aeroplane is equipped with a CVR.

Cockpit Voice Recorders.

(2) A person shall not operate an aeroplane of a maximum certificated take-off mass of over 27 000 kg for which the individual

certificate of airworthiness was first issued on or after the 1<sup>st</sup> January, 1987 unless the aeroplane is equipped with a CVR.

(3) A person shall not operate an aeroplane of a maximum certificated take-off mass of over 27 000 kg for which the individual certificate of airworthiness is first issued on or after the 1<sup>st</sup> January 2021 unless the aeroplane is equipped with a CVR capable of retaining the information recorded during at least the last twenty-five hours of its operation.

(4) All aeroplanes of a maximum certificated take-off mass over 5 700 kg, required to be equipped with an FDR and a CVR, may alternatively be equipped with two combination recorders (FDR/CVR).

65. (1) The operator of an aeroplane operated on an extended flight over water shall determine the risks to survival of the occupants of the aeroplane in the event of a ditching.

Aeroplanes on  
long-range over-  
water flights

(2) The operator shall take into account the operating environment and conditions such as, but not limited to, sea state and sea and air temperatures, the distance from land suitable for making an emergency landing, and the availability of search and rescue facilities.

(3) Based upon the assessment of the risks in sub-regulation (2), the operator shall, in addition to the equipment required in regulation 20, ensure that the aeroplane is appropriately equipped with—

- (a) life-saving rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency, provided with such lifesaving equipment, including means of sustaining life, as is appropriate to the flight to be undertaken; and
- (b) life jackets and equivalent individual flotation device, when carried in accordance with regulation 20, shall be equipped with a means of electric illumination for the purpose of facilitating the location of persons, except where the requirement of regulation 20 is met by the provision of individual flotation devices other than life jackets.

(4) Aeroplanes for which the individual certificate of airworthiness was first issued before the 1<sup>st</sup> January 1990 shall—

- (a) be equipped with a device to provide positive warning to the flight crew of any dangerous loss of pressurization for pressurized aeroplanes intended to be operated at flight altitudes at which the atmospheric pressure is less than 376 hPa;
- (b) be equipped with oxygen storage and dispensing apparatus capable of storing and dispensing the oxygen supplies required in regulation 9 for aeroplanes intended to be operated at flight altitudes at which the atmospheric pressure is less than 700 hPa in personnel compartments;
- (c) be operated at flight altitudes at which the atmospheric pressure is less than 700 hPa but which is provided with

means of maintaining pressures greater than 700 hPa in personnel; and

- (d) have compartments to be provided with oxygen storage and dispensing apparatus capable of storing and dispensing the oxygen supplies required in regulation 9.

66. A person shall not operate an aeroplane unless the aeroplane is equipped with suitable de-icing and anti-icing devices when operated in circumstances in which icing conditions are reported to exist or are expected to be encountered.

Aeroplanes in icing conditions.

67. In addition to the requirements contained in regulation 23, aeroplanes when operated in accordance with the instrument flight rules, or when the aeroplane cannot be maintained in a desired attitude without reference to one or more flight instruments, shall be equipped with two independent altitude measuring and display systems.

Aeroplanes operated in accordance with the instrument flight rules.

68. (1) Aeroplanes introduced into service after the 1<sup>st</sup> January 1975 shall be fitted with an emergency power supply, independent of the main electrical generating system, for the purpose of operating and illuminating, for a minimum period of 30 minutes, an attitude indicating instrument (artificial horizon), clearly visible to the pilot-in-command.

Emergency power supply for electrically operated attitude indicating instruments.

(2) 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.

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

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

69. (1) A person shall not operate a pressurized aeroplane when carrying passengers unless it is equipped with operative weather-detecting equipment capable of detecting thunderstorms whenever such aeroplanes are being operated in areas where such conditions may be expected to exist along the route either at night or under instrument meteorological conditions.

Pressurized aeroplanes when carrying passengers — weather-detecting equipment.

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

70. (1) Aeroplanes for which the individual certificate of airworthiness is first issued on or after the 1<sup>st</sup> January, 1981, shall be

Aeroplanes carrying

equipped with a forward or rearward facing seat (within 15 degrees of the longitudinal axis of the aeroplane), fitted with a safety harness for the use of each cabin crew member required to satisfy the intent of regulation 89.

passengers —  
cabin crew seats.

(2) Aeroplanes for which the individual certificate of airworthiness was first issued before the 1<sup>st</sup> January, 1981 shall have Cabin crew seats provided in accordance with regulation 90 or regulation 91 located near floor level and other emergency exits as required by the Authority for emergency evacuation.

71. (1) A person shall not 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 airworthiness certificate was first issued after the 24th November, 2005, unless the aeroplane is equipped with an Airborne Collision Avoidance System (ACAS II).

Aeroplanes  
required to be  
equipped with an  
Airborne  
Collision  
Avoidance  
System (ACAS).

(2) All turbine-engined aeroplanes of a maximum certificated take-off mass in excess of 5 700 kg but not exceeding 15 000 kg, or authorized to carry more than 19 passengers, for which the individual airworthiness certificate is first issued after the 1<sup>st</sup> January, 2008 shall be equipped with an Airborne Collision Avoidance System (ACAS II).

72. Aeroplanes shall be equipped with a pressure-altitude reporting transponder which operates in accordance with the relevant provisions of the Civil Aviation (Surveillance and Collision Avoidance System) Regulations.

Aeroplanes  
required to be  
equipped with a  
pressure-altitude  
reporting  
transponder.

#### AEROPLANE COMMUNICATION, NAVIGATION AND SURVEILLANCE EQUIPMENT

73. In addition to the requirements set out in regulation 37(1) to regulation 37(5), an aeroplane shall be provided with radio communication equipment capable of—

Communication  
equipment.

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

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

Installation.

75. (1) The operator of an aeroplane shall not employ electronic navigation data products that have been processed for application in the air and on the ground unless the Authority has approved the operator's procedures for ensuring that the process applied and the products

Electronic  
navigation data  
management.

delivered have met acceptable standards of integrity and that the products are compatible with the intended function of the existing equipment.

(2) The Authority shall ensure that the operator continues to monitor both the process and products.

(3) The operator shall implement procedures that ensure the timely distribution and insertion of current and unaltered electronic navigation data to all necessary aeroplanes.

#### AEROPLANE MAINTENANCE

76. (1) The operator shall comply with the requirements of regulation 38.

Operator's  
maintenance  
responsibilities.

(2) The operator shall ensure that all maintenance personnel receive initial and continuation training acceptable to the Authority and appropriate to their assigned tasks and responsibilities and this shall include human factors and coordination with other maintenance personnel and flight crew.

77. The operator shall provide a maintenance control manual, acceptable to the Authority, as specified in regulation 86, for the use and guidance of maintenance and operations personnel. The design of the manual should observe Human Factors principles.

Operator's  
maintenance  
control manual.

78. (1) The operator shall provide, for the use and guidance of maintenance and operational personnel concerned, a maintenance programme, acceptable to the Authority, containing the information required under regulation 87.

Maintenance  
programme.

(2) The design and application of the operator's maintenance programme shall observe Human Factors principles.

(3) The operator shall ensure copies of all amendments to the maintenance programme shall be furnished promptly to all organizations or persons to whom the maintenance programme has been issued.

79. The operator of an aeroplane, shall ensure that the information resulting from maintenance and operational experience with respect to continuing airworthiness, is transmitted as required by the Civil Aviation (Airworthiness) Regulations.

Continuing  
airworthiness  
information.

80. (1) The operator of an aeroplane shall ensure that a certificate of release to service is completed and signed, to certify that the maintenance work has been performed in accordance with the maintenance programme or other data and procedures acceptable to the Authority.

Certificate of  
release to service.

(2) certificate of release to service shall contain a certification including—

- (a) basic details of the maintenance performed;
- (b) the date such maintenance was completed;
- (c) when applicable, the identity of the approved maintenance organization; and

- (d) the identity of the person or persons signing the release.

#### AEROPLANE FLIGHT CREW

81. (1) The operator shall designate a pilot to act as pilot-in-command for each flight.

Composition of the flight crew.

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

82. (1) The operator shall, for each type of aeroplane, assign to all flight crew members the necessary functions they are to perform in an emergency or in a situation requiring emergency evacuation.

Flight crew member emergency duties.

(2) Recurrent training in accomplishing these functions shall be contained in the operator's training programme and shall include instruction in the use of all emergency and life-saving equipment required to be carried, and drills in the emergency evacuation of the aeroplane.

83. (1) The operator shall establish and maintain a training programme, acceptable to the Authority that is designed to ensure that a person who receives training acquires and maintains the competency to perform assigned duties, including skills related to human performance.

Flight crew member training programmes.

(2) Ground and flight training programmes shall be established, either through internal programmes or through a training services provider, and shall include or make reference to a syllabus for those training programmes in the company operations manual.

(3) The training programme shall include training to competency for all equipment installed.

(4) Flight simulators should be used to the maximum extent practicable for initial and annual recurrent training.

84. (1) The operator shall—

Flight crew member licensing.

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

(2) The operator of an aeroplane equipped with an Airborne Collision Avoidance System (ACAS II) shall ensure that each flight crew member has been appropriately trained to competency in the use of ACAS II equipment and the avoidance of collisions.

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

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

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

85. The operator should ensure that any person assigned as a flight operations officer or flight dispatcher is trained and maintains familiarization with all features of the operation which are pertinent to their duties, including knowledge and skills related to human factors as required in the Civil Aviation (Personnel Licensing) Regulations.

Flight Operations  
Officer/Flight  
Dispatcher.

#### MANUALS, LOGS AND RECORDS

86. The operator's maintenance control manual provided in accordance with regulation 77, which may be issued in separate parts, shall be developed according to industry codes of practice or to the guidance material issues by the Authority, and should at a minimum contain information about—

Operator's  
maintenance  
control manual.

- (a) the means for complying with the procedures required by regulation 76(1);
- (b) the means of recording the names and duties of the person or persons required by regulation 76(1);
- (c) the maintenance programme required by regulation 78(1);
- (d) the methods used for the completion and retention of the operator's maintenance records required by regulation 80;
- (e) the procedures for complying with the service information reporting requirements of Civil Aviation (Airworthiness) Regulations;
- (f) the procedures for implementing action resulting from mandatory continuing airworthiness information;
- (g) a system of analysis and continued monitoring of the performance and efficiency of the maintenance programme, in order to correct any deficiency in that programme;
- (h) the aircraft types and models to which the manual applies;
- (i) the procedures for ensuring that unserviceability affecting airworthiness are recorded and rectified; and
- (j) procedures for advising the Authority of significant in-service occurrences.

87. (1) A maintenance programme for each aeroplane as required by Regulation 78 shall contain the following information—

Maintenance programme.

- (a) maintenance tasks and the intervals at which these are to be performed, taking into account the anticipated utilization of the aeroplane;
- (b) when applicable, a continuing structural integrity programme;
- (c) procedures for changing or deviating from paragraphs(a) and (b) above as approved by the Authority; and
- (d) when applicable and approved by the Authority, condition monitoring and reliability programme descriptions for aircraft systems, components and engines.

(2) Maintenance tasks and intervals that have been specified as mandatory in approval of the type design, or approved changes to the maintenance programme, shall be identified as such.

(3) The maintenance programme shall be based on maintenance programme information made available by the State of Design or by the organization responsible for the type design, and any additional applicable experience.

88. The owner of the aeroplane, or the operator, shall ensure, to the extent possible, in the event the aeroplane becomes involved in an accident or incident, the preservation of all related flight recorder records and, if necessary, the associated flight recorders, and their retention in safe custody pending their disposition as determined in accordance with Civil Aviation (Aircraft Accident and Incident Investigation) Regulations.

Flight recorder records.

#### CABIN CREW

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

Assignment of emergency duties.

(2) The operator shall assign these functions for each type of aeroplane.

90. When cabin crew are required by the Authority, each cabin crew member assigned to emergency evacuation duties shall occupy a seat provided in accordance with regulation 71 during take-off and landing and whenever the pilot-in-command so directs.

Cabin crew at emergency evacuation stations.

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

Protection of cabin crew during flight.

92. (1) The operator shall ensure that a training programme is completed by all persons before being assigned as a cabin crew member.

Training.

(2) The operator should establish and maintain a cabin crew training programme that is designed to ensure that persons who receive training acquire the competency to perform their assigned duties and includes or makes reference to a syllabus for the training programme in the company operations manual and the training programme should include human factors training.

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

Reporting acts of unlawful interference.

94. (1) The operator shall establish, implement and maintain a written operator security program that ensures crew members act in the most appropriate manner to minimize the consequences of acts of unlawful interference.

Security programme.

(2) The security programme mentioned in (1) shall, as a minimum, include the following elements—

- (a) determination of the seriousness of any occurrence;
- (b) crew communication and coordination;
- (c) appropriate self-defence responses;
- (d) use of non-lethal protective devices assigned to crew members whose use is authorized by the Authority;
- (e) cockpit procedures to protect the aircraft; and
- (f) aircraft search procedures and guidance on least-risk bomb locations where practicable.

#### PART IV—EXEMPTION

95. (1) A person may apply to the Authority for an exemption from any of these Regulations.

Requirement for application.

(2) An application for exemption shall be submitted at least sixty days in advance of the proposed effective date.

(3) A request for an exemption must contain the applicant's name—

- (a) physical address and mailing address;
- (b) telephone number;
- (c) fax number if available; and
- (d) email address if available.

(4) The application shall be accompanied by a fee specified by the Authority, for technical evaluation.

96. An application for an exemption shall contain the following—

Request for exemption.

- (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, benefit 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
- (h) if the applicant seeks to operate under the proposed exemption outside of the Kenya airspace, the application shall indicate whether the exemption would contravene any provision of the Standards and Recommended Practices of the International Civil Aviation Organization (ICAO) as well as the Regulations pertaining to the airspace in which the operation will occur.

(2) Where the applicant seeks emergency processing, the application must 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.

97. (1) The Authority shall review the application for accuracy and compliance with the requirements of Regulations 95 and 96.

Initial review by the Authority.

(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 the Kenya 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 95 and 96 have not been met, the Authority will notify the applicant and take no further action until and unless 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 Authority's decision as soon as possible after processing the application.

98. (1) After initial review, if the filing requirements have been satisfied, the Authority shall conduct an evaluation of the request to include—

Evaluation of the request.

- (a) determination of whether an exemption would be in the public interest;

- (b) a determination, after a technical evaluation of whether the applicant's proposal 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 Authority's technical resources, 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 the Kenya the Authority shall publish the summary in the Aeronautical Information Circular.

#### PART V—GENERAL PROVISIONS

99. (1) A holder of a licence, certificate or authorisation or other document issued by the Authority shall have in his physical possession or at the work site when exercising the privileges of that licence, certificate, authorisation or such other document.

Possession of the licence.

(2) A flight crew of a foreign registered aircraft shall hold a valid licence, certificate or authorisation and have in his physical possession or at the work site when exercising the privileges of that licence, certificate or authorisation.

100. (1) Any person who performs any function related to operation of aircraft under these Regulations may be tested for drug or alcohol usage.

Drug and alcohol testing and reporting.

(2) The Authority may prohibit any person from carrying out the functions related to operation of aircraft, who—

- (a) tests positive for drug or alcohol usage;
- (b) refuses to submit to a test; or
- (c) refuses to furnish or to authorise the release of the test results requested by the Authority.

101. A person who holds a licence, certificate, authorisation or such other document required by these Regulations shall present it for inspection upon a request from the Authority or any person authorized by the Authority.

Inspection of licences and certificates.

102. (1) A holder of a licence, certificate, authorisation or other document issued under by the Authority may apply to change the name on a licence, certificate, authorisation or such other document.

Change of name.

(2) The holder shall include with any such request—

- (a) a court order, or other legal document verifying the name change; and
- (b) the current licence, certificate, authorisation or such other document sought to be amended.

(3) The Authority may change the licence, certificate, authorisation or such other document and issue a replacement thereof.

(4) The Authority shall return to the holder the original documents specified in sub-regulation 2(b) and retain copies thereof and return the replaced licence, certificate or authorisation with the appropriate endorsement.

(5) A licence, certificate, authorisation or such other document issued to a person under these Regulations is not transferable.

103. (1) A holder of a certificate, or authorisation issued under these Regulations shall notify the Authority of the change in the physical and mailing address and shall do so in the case of—

Change of address.

- (a) physical address, at least fourteen days in advance; and
- (b) mailing address upon the change.

(2) A person who does not notify the Authority of the change in the physical address within the time frame specified in sub-regulation (1) shall not exercise the privileges of the certificate or authorisation.

104. A person may apply to the Authority in the prescribed form for replacement of documents issued under these Regulations if the documents are lost or destroyed.

Replacement of documents.

105. (1) The Authority may, where it considers it to be in the public interest, suspend provisionally, pending further investigation, any certificate, approval, permission, exemption, authorisation or such other document issued, granted or having effect under these Regulations.

Certificate suspension and revocations.

(2) The Authority may, upon the completion of an investigation which has shown sufficient ground to its satisfaction and where it considers it to be in the public interest, revoke, suspend, or vary any certificate, approval, permission, exemption or such other document issued or granted under these Regulations.

(3) The Authority may, where it considers it to be in the public interest, prevent any person or aircraft from flying.

(4) A holder or any person having the possession or custody of any certificate, approval, permission, exemption or such other documents which has been revoked, suspended or varied under these Regulations shall surrender it to the Authority within 14 days from the date of revocation, suspension or variation.

(5) The breach of any condition subject to which any certificate, approval, permission, exemption or any other document has been granted or issued under these Regulations shall render the document invalid during the continuance of the breach.

106. (1) A person shall not—

- (a) use any certificate, approval, permission, exemption or such other document issued or required by or under these Regulations which has been forged, altered, revoked, or suspended, or to which he is not entitled;
- (b) forge or alter any certificate, approval, permission, exemption or such other document issued or required by or under these Regulations;
- (c) lend any certificate, approval, permission, exemption or such 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 any other person the issue renewal or variation of any such certificate, approval, permission or exemption or such other document.

Use and retention of certificates and records.

(2) During the period for which it is required under these Regulations to be preserved, a person shall not mutilate, alter, render illegible or destroy any records, or any entry made therein, 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 such record, or wilfully omit to make a material entry in such record.

(3) All records required to be maintained by or under these Regulations shall be recorded in a permanent and indelible material.

(4) A person shall not purport to issue any certificate, document or exemption under these Regulations unless he is authorised to do so by the Authority.

107. (1) Any person who knows of a violation of the Act, any amendment thereto, or any rule, regulation, or order issued there under, shall report it to the Authority.

Reports of violation.

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

108. (1) The Authority shall take enforcement action on any regulated entity that fails to comply with the provisions of these Regulations.

Enforcement of directions.

(2) Inspectors of the Authority holding valid delegations shall take necessary action to preserve safety where an undesirable condition has been detected.

(3) The action(s) referred to in sub-regulation (2) may include—

- (a) in the case of a regulated entity, imposition of operating restrictions until such a time that the existing undesirable condition has been resolved; and

- (b) in the case of a licensed personnel, require that the individual does not exercise the privileges of the license until such a time that the undesirable condition has been resolved.

(4) In carrying out the enforcement actions pursuant to the provisions of sub-regulation (2), the inspectors of the Authority shall invoke the powers with due care and act in good faith in the interest of preserving safety.

109. (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 such other document, including the issue of a copy thereof, 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 any orders, notices or proclamations made there under.

Aeronautical user fees.

(2) Upon an application being made in connection with which any fee is chargeable in accordance with the provisions of sub-regulation (1), the applicant shall be required, before the application is entertained, to pay the prescribed fees.

(3) If, after that 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 any payment made.

110. (1) These Regulations shall apply to aircraft, not being a 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.

Application of regulations to Government and visiting forces, etc.

(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 such a force shall be exempt from the provision of these regulations to the same extent as if the visiting force formed part of the military force of the Kenya.

111. Except where the context otherwise requires, the provisions of these Regulations shall—

Extra-territorial application of Regulations.

- (a) in so far as they apply, whether by express reference or otherwise, to aircraft registered in Kenya, apply to such aircraft wherever they may be;
- (b) in so far as they apply, whether by express reference or otherwise, to other aircraft, apply to such aircraft when they are within the Kenya;
- (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 Kenya, 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 Kenya by other persons shall, where such persons are citizens of the Kenya, apply to them wherever they may be.

112. (1) The operator or pilot-in-command of an aircraft registered in the Kenya (or, if the operator's principal place of business or permanent residence is in the Kenya, any other aircraft) which is being flown over any foreign State shall not allow that aircraft to be used for a purpose which is prejudicial to the security, public order or public health of, or to the safety of air navigation in relation to that State.

Flights over any foreign country.

(2) A person does not contravene sub-regulation (1) if that person neither knew nor had reasons to suspect that the aircraft was being or was to be used for a purpose referred to in sub-regulation (1).

(3) The operator or pilot-in-command of an aircraft registered in Kenya (or, if the operator's principal place of business or permanent residence is in the Kenya, any other aircraft) which is being flown over any foreign State shall comply with any directions given by the appropriate aeronautical authorities of that State whenever—

- (a) the flight has not been duly authorised; or
- (b) there are reasonable grounds for the appropriate aeronautical authorities to believe that the aircraft is being or will be used for a purpose which is prejudicial to the security, public order or public health of, or to the safety of air navigation in relation to that State, unless the lives of persons on board or the safety of the aircraft would thereby be endangered.

(4) A person does not contravene sub-regulation (3) if he neither knew nor suspected that the directions were being given by the appropriate aeronautical authorities.

(5) The requirement in sub-regulation (3) shall not prejudice the need to comply with other requirements or directions of aeronautical authority.

(6) In this regulation "appropriate aeronautical authorities" includes any person, whether a member of a country's military or civil authorities, authorised under the law of the foreign State to issue directions to aircraft flying over that State.

#### PART VI—GENERAL PROVISIONS

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

Contravention of Regulations.

114. A person who is aggrieved with the decision of the Authority under these regulations may within twenty one days appeal to the tribunal.

Appeals to the Tribunal.

115. (1) If any provision of these Regulations, is contravened in relation to an aircraft, the operator of that aircraft and the pilot in

Offences.

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 he or she proves that the contravention occurred without his consent or connivance and that he or she exercised all due diligence to prevent the contravention.

(2) A person who contravenes any provision specified as an "A" provision in the Fifth Schedule to these Regulations commits an offence and is liable on conviction to a fine not exceeding one million shillings for each offence and 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 Fifth Schedule to these Regulations commits an offence and is liable on conviction to a fine not exceeding two million shillings for each offence and 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 Fifth Schedule to these Regulations commits an offence and is liable on conviction to a fine not exceeding two million shillings, and in the case of a second or subsequent conviction for the like offence to a fine not exceeding four million shillings.

116. (1) A 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.

Transitional.

(2) Notwithstanding any other provision of these Regulations, a person who at the commencement of these Regulations, is carrying out any acts, duties or operations affected by these Regulations shall, within one (1) year from the date of commencement, or within such longer time that the Cabinet Secretary may, by notice in the Gazette prescribe, comply with the requirements of these Regulations or cease to carry out such acts, duties or operations.

FIRST SCHEDULE

(regulation 7)

GENERAL AVIATION SPECIFIC APPROVALS

PURPOSE AND SCOPE

1.1 Specific approvals shall have a standardized format which contains the minimum information required in the specific approval template.

*Note.— When the operations to be conducted require a specific approval, a copy of the document(s) needs to be carried on board (see sub-regulation 15(2)).*

2. SPECIFIC APPROVAL TEMPLATE

SPECIFIC APPROVAL				
ISSUING AUTHORITY and CONTACT DETAILS <sup>1</sup>				
Issuing Authority <sup>1</sup> _____				
Address _____				
Signature: _____		Date <sup>2</sup> : _____		
Telephone: _____		Fax: _____		Email: _____
OWNER/OPERATOR				
Name <sup>3</sup> : _____				
Address: _____				
Telephone: _____		Fax: _____		
_____		Email: _____		
Aircraft model <sup>4</sup> and registration marks:				
SPECIFIC APPROVAL	YES	NO	DESCRIPTION <sup>5</sup>	REMARKS
Low visibility operations				
Approach and landing	<input type="checkbox"/>	<input type="checkbox"/>	CAT <sup>6</sup> : _____ m RVR: _____ DH: _____ ft	
Take-off	<input type="checkbox"/>	<input type="checkbox"/>	RVR <sup>7</sup> : _____ m	
Operational credit(s)	<input type="checkbox"/>	<input type="checkbox"/>	8	

RVSM	<input type="checkbox"/>	<input type="checkbox"/>		
AR navigation specifications for PBN operations	<input type="checkbox"/>	<input type="checkbox"/>	9	
Other <sup>10</sup>	<input type="checkbox"/>	<input type="checkbox"/>		

Notes:—

1. Civil Aviation Authority name and contact details, including the telephone country code and email if available.
2. Issuance date of the specific approval (dd-mm-yyyy) and signature of the authority representative.
3. Owner or operator's name and address.
4. Insert the aeroplane make, model and series, or master series, if a series has been designated. The CAST/ICAO taxonomy is available at: <http://www.intlaviationstandards.org/>.
5. List in this column the most permissive criteria for each approval or the approval type (with appropriate criteria).
6. Insert the applicable precision approach category (CAT II, IIIA, IIIB or IIIC). Insert the minimum RVR in metres and decision height in feet. One line is used per listed approach category.
7. Insert the approved minimum take-off RVR in metres. One line per approval may be used if different approvals are granted.
8. List the airborne capabilities (i.e. automatic landing, HUD, EVS, SVS, CVS) and associated operational credit(s) granted.
9. Performance-based navigation (PBN): one line is used for each PBN AR navigation specification approval (e.g. RNP AR APCH), with appropriate limitations listed in the "Description" column.
10. Other specific approvals or data can be entered here, using one line (or one multi-line block) per approval (e.g. specific approach operations approval, MNPS).

#### ATTACHMENT I.A—CARRIAGE AND USE OF OXYGEN

##### INTRODUCTION

The performance of crew members and the well-being of passengers during flights at such altitudes where a lack of oxygen might result in impairment of faculties are of major concern. Research conducted in altitude chambers or by exposure to mountain elevations indicates that human tolerance could be related to the altitude concerned and the exposure time. The subject is dealt with in detail in the *Manual of Civil Aviation Medicine* (Doc 8984). In light of the above and to further assist the pilot-in-command in providing the oxygen supply intended by Regulation 9(8) of this Regulations, the following guidelines, which take into account the requirements already established in the

Civil Aviation (Operations of Aircraft Commercial Air Transport) Regulations, are considered relevant.

#### OXYGEN SUPPLY

1.1 A flight to be operated at altitudes at which the atmospheric pressure in personnel compartments will be less than 700 hPa should not be commenced unless sufficient stored breathing oxygen is carried to supply

- (a) all crew members and at least 10 per cent of the passengers for any period in excess of 30 minutes that the pressure in compartments occupied by them will be between 700 hPa and 620 hPa; and
- (b) all crew members and passengers for any period that the atmospheric pressure in compartments occupied by them will be less than 620 hPa.

1.2 A flight to be operated with a pressurized aeroplane should not be commenced unless a sufficient quantity of stored breathing oxygen is carried to supply all crew members and passengers, as is appropriate to the circumstances of the flight being undertaken, in the event of loss of pressurization, for any period that the atmospheric pressure in any compartment occupied by them would be less than 700 hPa. In addition, when an aeroplane is operated at flight altitudes at which the atmospheric pressure is less than 376 hPa, or which, if operated at flight altitudes at which the atmospheric pressure is more than 376 hPa and cannot descend safely within four minutes to a flight altitude at which the atmospheric pressure is equal to 620 hPa, there shall be no less than a 10-minute supply for the occupants of the passenger compartment.

#### 2. USE OF OXYGEN

2.1 All flight crew members, when engaged in performing duties essential to the safe operation of an aeroplane in flight, should use breathing oxygen continuously whenever the circumstances prevail for which its supply has been indicated to be necessary in 1.1 or 1.2.

2.2 All flight crew members of pressurized aeroplanes operating above an altitude where the atmospheric pressure is less than 376 hPa should have available at the flight duty station a quick donning type of mask which will readily supply oxygen upon demand.

*Note.— Approximate altitudes in the Standard Atmosphere corresponding to the values of absolute pressure used in the text are as follows:*

<i>Absolute pressure</i>	<i>Metres</i>	<i>Feet</i>
700 hPa	3 000	10 000
620 hPa	4 000	13 000
376 hPa	7 600	25 000

#### ATTACHMENT 1.B—AUTOMATIC LANDING SYSTEMS

##### HEAD-UP DISPLAY (HUD) OR EQUIVALENT DISPLAYS AND VISION SYSTEMS

###### INTRODUCTION

The material in this attachment provides guidance for certified automatic landing systems, HUD or equivalent displays and vision systems intended for operational use in aircraft engaged in international air navigation. These systems and hybrid systems may be installed and operated to reduce workload, improve guidance, reduce flight technical

error and enhance situational awareness and/or to obtain operational credits. Automatic landing systems, HUD or equivalent displays and vision systems may be installed separately or together as part of a hybrid system. Any operational credit for their use requires a specific approval from the Authority.

*Note 1.— “Vision systems” is a generic term referring to the existing systems designed to provide images, i.e. enhanced vision systems (EVS), synthetic vision systems (SVS) and combined vision systems (CVS).*

*Note 2.— Operational credit can be granted only within the limits of the airworthiness approval.*

*Note 3.— Currently, operational credit has been given only to vision systems containing an image sensor providing a real-time image of the actual external scene on a HUD.*

*Note 4.— More detailed information and guidance on automatic landing systems, HUD or equivalent displays and vision systems are contained in the Manual of All-Weather Operations (Doc 9365). This manual should be consulted in conjunction with this attachment.*

## 1. HUD AND EQUIVALENT DISPLAYS

### 1.1. General

1.1.1 A HUD presents flight information into the pilot’s forward external field of view without significantly restricting that external view.

1.1.2 Flight information should be presented on a HUD or an equivalent display, as required for the intended use.

### 1.2. Operational applications

1.2.1 Flight operations with a HUD can improve situational awareness by combining flight information located on head-down displays with the external view to provide pilots with more immediate awareness of relevant flight parameters and situation information while they continuously view the external scene. This improved situational awareness can also reduce errors in flight operations and improve the pilot’s ability to transition between instrument and visual references as meteorological conditions change.

1.2.2 A HUD may be used to supplement conventional flight deck instrumentation or as primary flight displays if certified for this purpose.

1.2.3 An approval HUD may—

- (a) qualify for operations with reduced visibility or reduced RVR; or
- (b) replace some parts of the ground facilities such as touchdown zone and/or centre line lights.

1.2.4 The functions of a HUD may be provided by a suitable equivalent display. However, before such systems can be used, the appropriate airworthiness approval should be obtained.

### 1.3. HUD training

Training and recent experience requirements for operations using HUD or equivalent displays should be established by the Authority. The training should address all flight operations for which the HUD or equivalent display is used.

## VISION SYSTEMS

### 2.1. General

2.1.1 Vision systems can display electronic real-time images of the actual external scene achieved through the use of image sensors, i.e. EVS, or display synthetic images, which are derived from the on-board avionic systems, i.e. SVS. Vision systems can also consist of a combination of these two systems called combined vision systems (CVS). Such a system may display electronic real-time images of the external scene using the EVS component of the system. The information from vision systems may be displayed head-up and/or head-down. Operational credit may be granted to vision systems which are appropriately qualified.

2.1.2 Light emitting diode (LED) lights may not be visible to infrared-based vision systems. Operators of such vision systems will need to acquire information about the LED implementation programmes at aerodromes where they intend to operate. More details about the consequences of LED lights are contained in the *Manual of All-Weather Operations* (Doc. 9365).

### 2.1. Operational applications

2.2.1 Flight operations with EVS allow the pilot to view an image of the external scene obscured by darkness or other visibility restrictions. The use of EVS will also allow acquisition of an image of the external scene earlier than with natural, unaided vision, hence providing for a smoother transition to references by natural vision. The improved acquisition of an image of the external scene may improve situational awareness. It may also qualify for operational credit if the information from the vision system is presented to the pilots in a suitable way and the necessary airworthiness approval and specific approval by the Authority have been obtained for the combined system.

2.2.2 Vision system imagery may also enable pilots to detect other aircraft on the ground, terrain or obstructions on the or adjacent to runways or taxiway.

### 2.3. Operational concepts

2.3.1 Instrument approach operations include an instrument phase and a visual phase. The instrument phase ends at the published MDA/H or DA/H unless a missed approach is initiated. Using the EVS or CVS does not change the applicable MDA/H or DA/H. The continued approach to landing from MDA/H or DA/H will be conducted using visual references. This also applies to operations with vision systems. The difference is that the visual references will be acquired by use of an EVS or CVS, natural vision or the vision system in combination with natural vision.

2.3.2 Down to a defined height in the visual segment, typically at or above 30 m (100 ft), the visual references may be acquired solely by means of the vision system. The defined height depends on the airworthiness approval and the specific approval by the Authority. Below this height the visual references should be solely based on natural vision. In the most advanced applications, the vision system may be used down to touchdown without the requirement for natural vision acquisition of visual references. This means that such a vision system may be the sole means of acquiring visual references and can be used without natural vision.

## EVS OPERATIONS

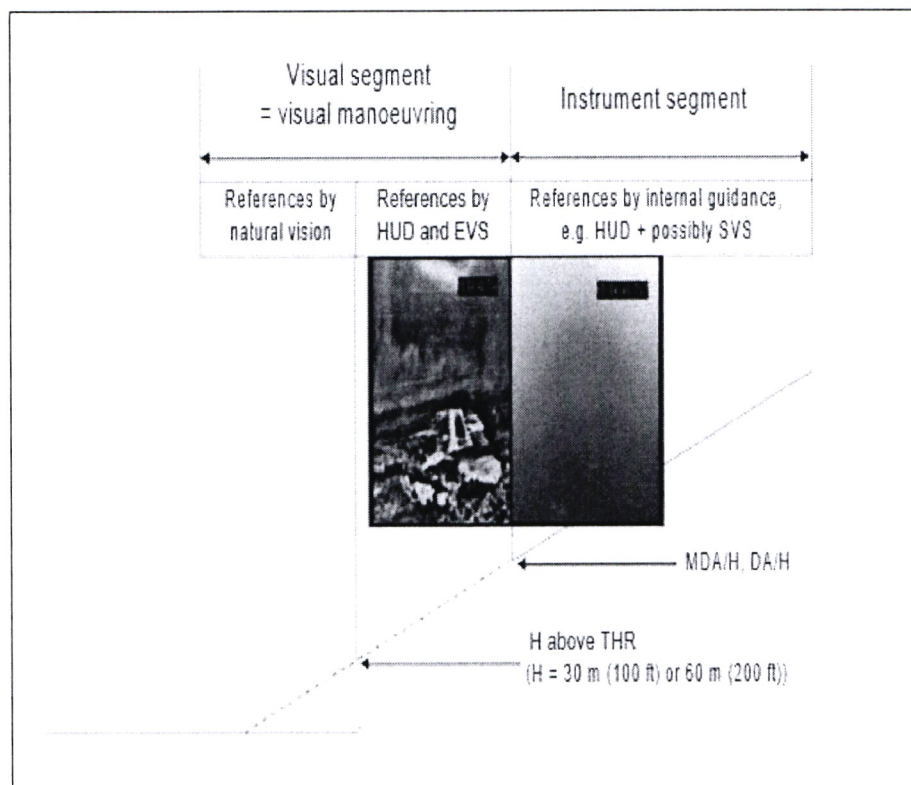


Figure 2.B-1. EVS operations — transition from instrument to visual references

#### 2.4. Vision systems training

Training and recent experience requirements should be established by the Authority. Training should address all flight operations for which the vision system is used.

#### 2.5. Visual references

2.5.1 In principle, the required visual references do not change due to the use of an EVS or CVS, but those references are allowed to be acquired by means of the vision system until a certain height during the approach as described in 2.3.2.

2.5.2 In States that have developed requirements for operations with vision systems, the use of visual references have been regulated and examples of this are provided in the *Manual of All-Weather Operations* (Doc 9365).

#### HYBRID SYSTEMS

A hybrid system generically means that two or more systems are combined. The hybrid system typically has improved performance compared to each of the component systems, which in turn may qualify for operational credit. The inclusion of systems in the hybrid system normally enhances the performance of the system. The *Manual of All-Weather Operations* (Doc 9365) contains some examples of hybrid systems.

#### 4. OPERATIONAL CREDITS

4.1 Aerodrome operating minima are expressed in terms of minimum visibility/RVR and MDA/H or DA/H. When aerodrome operating minima are established, the combined capability of the aircraft equipment and on-ground infrastructure should be taken into account. Better equipped aircraft may be able to operate into lower natural visibility conditions, lower DA/H and/or operate with less ground infrastructure. Operational credit means that the aerodrome operating minima may be reduced in case of suitably equipped aircraft. Another way to grant operational credit is to allow visibility requirements to be fulfilled, wholly or partly, by means of the on-board systems. HUD, automatic landing or vision systems, which were not available at the time the criteria for aerodrome operating minima were originally established.

4.2 The granting of operational credits does not affect the classification (i.e. Type or Category) of an instrument approach procedure since they are designed to support instrument approach operations conducted with aircraft with the minimum equipment prescribed.

4.3 The relation between the procedure design and the operation can be described as follows. The OCA/H is the end product of the procedure design, which does not contain any RVR or visibility values. Based on the OCA/H and all the other elements such as available runway visual aids, the operator will establish MDA/H or DA/H and RVR/visibility, i.e. the aerodrome operating minima. The values derived should not be less than those that may be prescribed by the State of the Aerodrome.

#### 5. OPERATIONAL PROCEDURES

In accordance with Chapter 2.4, 2.4.15.2, the operator should develop suitable operational procedures associated with the use of an automatic landing system, a HUD or an equivalent display, vision systems and hybrid systems. These procedures should be included in the operations manual and cover at least the following—

- (a) limitations;
- (b) operational credits;

- (c) flight planning;
- (d) ground and airborne operations;
- (e) crew resource management;
- (f) standard operating procedures; and
- (g) ATS flight plans and communication.

## 6. APPROVALS

### 6.1. General

*Note.— When the application for a specific approval relates to operational credits for systems not including a vision system, the guidance on approvals in this attachment may be used to the extent applicable as determined by the Authority.*

6.1.1 The operator that wishes to conduct operations with an automatic landing system, a HUD or equivalent display, vision system or hybrid system will need to meet certain criteria and, in some instances, obtain specific approvals (see Chapter 2.2, 2.2.2.2 and Chapter 2.4, 2.4.15). The extent of the approvals will depend on the intended operation and the complexity of the equipment.

6.1.2 Systems may be used to improve situational awareness without a specific approval. However, the standard operating procedures for these systems should be specified in the operations manual or equivalent document. An example of this type of operation may include an EVS or an SVS on a head-down display that is used only for situational awareness of the surrounding area of the aircraft during ground operations where the display is not in the pilot's primary field of view. For enhanced situational awareness, the installation and operational procedures need to ensure that the operation of the vision system does not interfere with normal procedures or the operation or use of other aircraft systems. In some cases, modifications to these normal procedures for other aircraft systems or equipment may be necessary to ensure compatibility.

6.1.3 Chapter 2.2, 2.2.2.2.1.1 states that operational credits based on the use of an automatic landing system, a HUD or an equivalent display, EVS, SVS or CVS or any combination of those systems into a hybrid system, should be specifically approved.

6.1.4 The Standard in Chapter 2.4, 2.4.15 requires the Authority to establish criteria for the use of an automatic landing system, a HUD or an equivalent display, EVS, SVS or CVS or any combination of those systems into a hybrid system "for the safe operation of an aeroplane" and specifies such criteria. When operational credits are granted by the Authority as per the Standard in Chapter 2.2, 2.2.2.2.1.1, the use of that system becomes essential for the safety of those operations and approval of the use of such systems is part of the operational credit specific approval. The use of these systems solely for enhanced situational awareness, reduced flight technical error and/or reduced workload is an important safety feature, but does not require a specific approval.

6.1.5 Any operational credit that has been granted should be reflected in the specific approval template and be carried on board the particular aeroplane.

### 6.2. Specific approvals for operational credit

6.2.1 To obtain operational credit the operator will need to specify the desired operational credit and submit an application in accordance with Chapter 2.1, 2.1.4. The content of a suitable application should include

- (a) *Applicant details.* The official name and any business or trading name(s), address, mailing address, email address and contact telephone/fax numbers of the applicant.
- (b) Aircraft details. Aircraft make(s), model(s) and registration mark(s).
- (c) Operator's vision system compliance list. The contents of the compliance list are included in the Manual of All-Weather Operations (Doc 9365). The compliance list should include the information that is relevant to the approval requested and the registration marks of the aircraft involved. If more than one type of aircraft/fleet is included in a single application, a completed compliance list should be included for each aircraft/fleet.
- (d) Documents to be included with the application. Copies of all documents to which the operator has made references should be included in the application. There should be no need to send complete manuals; only the relevant sections/pages should be required. Additional guidance material can be found in the Manual of All-Weather Operations (Doc 9365).
- (e) Name, title and signature.

6.2.2 The following items should be covered in a vision systems compliance list—

- (a) reference documents used in compiling the submission for approval;
- (b) flight manual;
- (c) feedback and reporting of significant problems;
- (d) requested operational credit and resulting aerodrome operating minima;
- (e) operations manual (or an equivalent document) entries including MEL (where applicable) and standard operating procedures;
- (f) safety risk assessment;
- (g) training programmes; and
- (h) continuing airworthiness.

*Note:-Expanded guidance on these items is contained in the Manual of All-Weather Operations (Doc 9365).*

#### ATTACHMENT 2.A—COMPANY OPERATIONS MANUAL

The following is the suggested content of a company operations manual. It may be issued in separate parts corresponding to specific aspects of an operation. It should include the instructions and information necessary to enable the personnel concerned to perform their duties safely and shall contain at least the following information—

- (a) table of contents;
- (b) amendment control page and list of effective pages, unless the entire document is reissued with each amendment and the document has an effective date on it;
- (c) duties, responsibilities and succession of management and operating personnel;
- (d) operator safety management system;
- (e) operational control system;
- (f) MEL procedures (where applicable);

- (g) normal flight operations;
- (h) standard operating procedures (SOPs);
- (i) weather limitations;
- (j) flight and duty time limitations;
- (k) emergency operations;
- (l) accident/incident considerations;
- (m) personnel qualifications and training;
- (n) record keeping;
- (o) a description of the maintenance control system;
- (p) security procedures (where applicable);
- (q) performance operating limitations;
- (r) use/protection of FDR/CVR records (where applicable);
- (s) handling of dangerous goods; and
- (t) use of head-up displays (HUD)/enhanced vision systems (EVS).

#### ATTACHMENT 2.B—MINIMUM EQUIPMENT LIST (MEL)

##### *Supplementary to 3.6.1.1*

1. If deviations from the requirements of States in the certification of aircraft were not permitted, an aircraft could not be flown unless all systems and equipment were operable. Experience has proved that some un-serviceability can be accepted in the short term when the remaining operative systems and equipment provide for continued safe operations.
2. The State should indicate through approval of a minimum equipment list those systems and items of equipment that may be inoperative for certain flight conditions with the intent that no flight can be conducted with inoperative systems and equipment other than those specified.
3. A minimum equipment list, approved by the State of the Operator, is therefore necessary for each aircraft, based on the master minimum equipment list established for the aircraft type by the organization responsible for the type design in conjunction with the State of Design.
4. The State of the Operator should require the operator to prepare a minimum equipment list designed to allow the operation of an aircraft with certain systems or equipment inoperative provided an acceptable level of safety is maintained.
5. The minimum equipment list is not intended to provide for operation of the aircraft for an indefinite period with inoperative systems or equipment. The basic purpose of the minimum equipment list is to permit the safe operation of an aircraft with inoperative systems or equipment within the framework of a controlled and sound programme of repairs and parts replacement.
6. Operators are to ensure that no flight is commenced with multiple minimum equipment list items inoperative without determining that any interrelationship between inoperative systems or components will not result in an unacceptable degradation in the level of safety or undue increase in the flight crew workload.

7. The exposure to additional failures during continued operation with inoperative systems or equipment should also be considered in determining that an acceptable level of safety is being maintained. The minimum equipment list may not deviate from requirements of the flight manual limitations section, emergency procedures or other airworthiness requirements of the Authority or of the State of the Operator unless the appropriate airworthiness authority or the flight manual provides otherwise.

8. Systems or equipment accepted as inoperative for a flight should be placarded where appropriate and all such items should be noted in the aircraft technical log to inform the flight crew and maintenance personnel of the inoperative system or equipment.

9. For a particular system or item of equipment to be accepted as inoperative, it may be necessary to establish a maintenance procedure, for completion prior to flight, to deactivate or isolate the system or equipment. It may similarly be necessary to prepare an appropriate flight crew operating procedure.

10. The responsibilities of the pilot-in-command in accepting an aeroplane for operation with deficiencies in accordance with a minimum equipment list are specified in 2.2.3.1.

## SECOND SCHEDULE

(regulation 23(b))

### ALTIMETRY SYSTEM PERFORMANCE

#### REQUIREMENTS FOR OPERATIONS IN RVSM AIRSPACE

1. In respect of groups of aeroplanes that are nominally of identical design and build with respect to all details that could influence the accuracy of height-keeping performance, the height-keeping performance capability shall be such that the total vertical error (TVE) for the group of aeroplanes shall have a mean no greater than 25 m (80 ft) in magnitude and shall have a standard deviation no greater than  $28 - 0.013z^2$  for  $0 \leq z \leq 25$  when  $z$  is the magnitude of the mean TVE in metres, or  $92 - 0.004z^2$  for  $0 \leq z \leq 80$  where  $z$  is in feet. In addition, the components of TVE shall have the following characteristics—

- (a) the mean altimetry system error (ASE) of the group shall not exceed 25 m (80 ft) in magnitude;
- (b) the sum of the absolute value of the mean ASE and of three standard deviations of ASE shall not exceed 75 m (245 ft); and
- (c) the differences between cleared flight level and the indicated pressure altitude actually flown shall be symmetric about a mean of 0 m, with a standard deviation no greater than 13.3 m (43.7 ft), and in addition, the decrease in the frequency of differences with increasing difference magnitude shall be at least exponential.

2. In respect of aeroplanes for which the characteristics of the airframe and altimetry system fit are unique and so cannot be classified as belonging to a group of aeroplanes encompassed by paragraph 1, the height-keeping performance capability shall be such that the components of the TVE of the aeroplane have the following characteristics—

- (a) the ASE of the aeroplane shall not exceed 60 m (200 ft) in magnitude under all flight conditions; and
- (b) the differences between the cleared flight level and the indicated pressure altitude actually flown shall be symmetric about a mean of 0 m, with a standard deviation no greater than 13.3 m (43.7 ft), and in addition, the decrease in the frequency of differences with increasing difference magnitude shall be at least exponential.

## THIRD SCHEDULE

(R. 33)

## FLIGHT RECORDERS

The material in this Schedule concerns flight recorders intended for installation in aeroplanes engaged in international air navigation. Crash-protected flight recorders comprise one or more of the following systems: a flight data recorder (FDR), a cockpit voice recorder (CVR), an airborne image recorder (AIR) or a data link recorder (DLR). Lightweight flight recorders comprise one or more of the following systems: an aircraft data recording system (ADRS), a cockpit audio recording system (CARS), an airborne image recording system (AIRS) and/or a data link recording system (DLRS).

## 1. GENERAL REQUIREMENTS

## 1.1 Non-deployable flight recorder containers shall—

- (a) be painted a distinctive orange or yellow colour;
- (b) carry reflective material to facilitate their location; and
- (c) have securely attached an automatically activated underwater locating device operating at a frequency of 37.5 kilohertz (kHz). At the earliest practical date, but not later than 1 January 2018, this device shall operate for a minimum of ninety days.

*Note.— Current industry practice is to phase out yellow flight recorder containers at the end of the service life of the flight recorders.*

## 1.2 The flight recorder systems shall be installed so that—

- (a) the probability of damage to the recordings is minimized;
- (b) they receive electrical power from a bus that provides the maximum reliability for operation of the flight recorder systems without jeopardizing service to essential or emergency loads;
- (c) there is an aural or visual means for pre-flight checking that the flight recorder systems are operating properly; and
- (d) if the flight recorder systems have a bulk erasure device, the installation shall be designed to prevent operation of the device during flight time or crash impact.

1.3 The flight recorder systems, when tested by methods approved by the appropriate certificating authority, shall be demonstrated to be suitable for the environmental extremes over which they are designed to operate.

1.4 Means shall be provided for an accurate time correlation between the recorder systems recordings.

1.5 The manufacturer shall provide the appropriate certificating authority with the following information in respect of the flight recorder systems.

- (a) manufacturer's operating instructions, equipment limitations and installation procedures; and
- (b) manufacturer's test reports.

## 2. FLIGHT DATA RECORDER (FDR)

2.1 The flight data recorder shall start to record prior to the aeroplane moving under its own power and record continuously until the termination of the flight when the aeroplane is no longer capable of moving under its own power.

## 2.2 Parameters to be recorded

2.2.1 Flight data recorders shall be classified as Type I, Type IA and Type II depending upon the number of parameters to be recorded.

2.2.2 The parameters that satisfy the requirements for FDRs are listed in the paragraphs below. The number of parameters to be recorded shall depend on aeroplane complexity. The parameters without an asterisk (\*) are mandatory parameters which shall be recorded regardless of aeroplane complexity. In addition, the parameters designated by an asterisk

*(\*) shall be recorded if an information data source for the parameter is used by aeroplane systems or the flight crew to operate the aeroplane. However, other parameters may be substituted with due regard to the aeroplane type and the characteristics of the recording equipment.*

2.2.2.1 The following parameters shall satisfy the requirements for flight path and speed—

- (a) Pressure altitude;
- (b) Indicated airspeed or calibrated airspeed;
- (c) Air-ground status and each landing gear air-ground sensor when practicable;
- (d) Total or outside air temperature;
- (e) Heading (primary flight crew reference);
- (f) Normal acceleration;
- (g) Lateral acceleration;
- (h) Longitudinal acceleration (body axis);
- (i) Time or relative time count;
- (j) Navigation data\*: drift angle, wind speed, wind direction, latitude/longitude;
- (k) Groundspeed\*;
- (l) Radio altitude\*.

2.2.2.2 The following parameters shall satisfy the requirements for attitude

- (a) Pitch attitude;
- (b) Roll attitude;
- (c) Yaw or sideslip angle\*;
- (d) Angle of attack\*.

2.2.2.3 The following parameters shall satisfy the requirements for engine power:

- (a) Engine thrust/power: propulsive thrust/power on each engine, cockpit thrust/power lever position;
- (b) Thrust reverse status\*;
- (c) Engine thrust command\*;
- (d) Engine thrust target\*;

- (e) Engine bleed valve position\*;
- (f) Additional engine parameters\*:

EPR, N1, indicated vibration level, N2, EGT, TLA, fuel flow, fuel cut-off lever position, N3/

2.2.2.4 The following parameters shall satisfy the requirements for configuration.

- (a) Pitch trim surface position;
- (b) Flaps\*: trailing edge flap position, cockpit control selection;
- (c) Slats\*: leading edge flap (slat) position, cockpit control selection;
- (d) Landing gear\*: landing gear, gear selector position;
- (e) Yaw trim surface position\*;
- (f) Roll trim surface position\*;
- (g) Cockpit trim control input position pitch\*;
- (h) Cockpit trim control input position roll\*;
- (i) Cockpit trim control input position yaw\*;
- (j) Ground spoiler and speed brake\*: Ground spoiler position, ground spoiler selection, speed brake position, speed brake selection;
- (k) De-icing or anti-icing systems selection\*;
- (l) Hydraulic pressure (each system)\*;
- (m) Fuel quantity in CG trim tank\*;
- (n) AC electrical bus status\*;
- (o) DC electrical bus status\*;
- (p) APU bleed valve position\*
- (q) Computed centre of gravity\*

2.2.2.5 The following parameters shall satisfy the requirements for operation:

- (a) Warnings;
- (b) Primary flight control surface and primary flight control pilot input: pitch axis, roll axis, yaw axis;
- (c) Marker beacon passage;
- (d) Each navigation receiver frequency selection;
- (e) Manual radio transmission keying and CVR/FDR synchronization reference;
- (f) Autopilot/autothrottle/AFCS mode and engagement status\*;
- (g) Selected barometric setting\*: pilot, first officer;
- (h) Selected altitude (all pilot selectable modes of operation)\*;
- (i) Selected speed (all pilot selectable modes of operation)\*;
- (j) Selected Mach (all pilot selectable modes of operation)\*;

- (k) Selected vertical speed (all pilot selectable modes of operation)\*
- (l) Selected heading (all pilot selectable modes of operation)\*;
- (m) Selected flight path (all pilot selectable modes of operation)\*: course/DSTRK, path angle;
- (n) Selected decision height\*;
- (o) EFIS display format\*: pilot, first officer;
- (p) Multi-function/engine/alerts display format\*;
- (q) GPWS/TAWS/GCAS status\*: selection of terrain display mode including pop-up display status, terrain alerts, both cautions and warnings, and advisories, on/off switch position;
- (r) Low pressure warning\*: hydraulic pressure, pneumatic pressure;
- (s) Computer failure\*;
- (t) Loss of cabin pressure\*;
- (u) TCAS/ACAS (traffic alert and collision avoidance system/airborne collision avoidance system)\*;
- (v) Ice detection\*;
- (w) Engine warning each engine vibration\*;
- (x) Engine warning each engine over temperature\*;
- (y) Engine warning each engine oil pressure low\*;
- (z) Engine warning each engine over speed\*;
  - (aa) Wind shear warning\*;
  - (bb) Operational stall protection, stick shaker and pusher activation\*
  - (cc) All cockpit flight control input forces\*: control wheel, control column, rudder pedal cockpit input forces;
  - (dd) Vertical deviation\*: ILS glide path, MLS elevation, GNSS approach path;
  - (ee) Horizontal deviation\*: ILS localizer, MLS azimuth, GNSS approach path;
  - (ff) DME 1 and 2 distances\*;
  - (gg) Primary navigation system reference\*: GNSS, INS, VOR/DME, MLS, Loran C, ILS;
  - (hh) Brakes\*: left and right brake pressure, left and right brake pedal position;
  - (ii) Date\*;
  - (jj) Event marker\*;
  - (kk) Head-up display in use\*;
  - (ll) Para visual display on\*.

*Note.— It is not intended that aeroplanes issued with an individual certificate of airworthiness before 1 January 2016 be modified to meet the range, sampling, accuracy or resolution guidance detailed in this Schedule.*

2.2.2.6 Type IA FDR. This FDR shall be capable of recording, as appropriate to the aeroplane, at least the 78 parameters in Table A1.3-1.

2.2.2.7 Type I FDR. This FDR shall be capable of recording, as appropriate to the aeroplane, at least the first.

32 parameters in Table A1.3-1.

2.2.2.8 Type II FDR. This FDR shall be capable of recording, as appropriate to the aeroplane, at least the first.

15 parameters in Table A1.3-1.

2.2.2.9 The parameters that satisfy the recommendations for flight path and speed as displayed to the pilot(s) are listed below. The parameters without an (\*) are mandatory parameters which shall be recorded. In addition, the parameters designated by an (\*) are to be recorded if an information source for the parameter is displayed to the pilot and is practicable to record.

- (a) Pressure altitude;
- (b) Indicated airspeed or calibrated airspeed;
- (c) Heading (primary flight crew reference);
- (d) Pitch attitude;
- (e) Roll attitude;
- (f) Engine thrust/power;
- (g) Landing gear status\*;
- (h) Total or outside air temperature\*;
- (i) Time\*;
- (j) Navigation data\*: Drift angle, wind speed, wind direction, latitude/longitude;
- (k) Radio altitude\*.

### 2.3 Additional information

2.3.1 A Type IIA FDR, in addition to a 30-minute recording duration, shall retain sufficient information from the preceding take-off for calibration purposes.

2.3.2 The measurement range, recording interval and accuracy of parameters on installed equipment shall be verified by methods approved by the appropriate certificating authority.

2.3.3 Documentation concerning parameter allocation, conversion equations, periodic calibration and other serviceability/maintenance information shall be maintained by the operator/owner. The documentation shall be sufficient to ensure that accident investigation authorities have the necessary information to read out the data in engineering units.

## 3. COCKPIT VOICE RECORDER (CVR) AND COCKPIT AUDIO RECORDING SYSTEM (CARS)

### 3.1 Signals to be recorded

The CVR and CARS shall start to record prior to the aeroplane moving under its own power and record continuously until the termination of the flight when the aeroplane is no longer capable of moving under its own power. In addition, depending on the availability of electrical power, the CVR and CARS shall start to record as early as possible during

the cockpit checks prior to engine start at the beginning of the flight until the cockpit checks immediately following engine shutdown at the end of the flight.

3.1.1 The CVR shall record on four separate channels, or more, 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 aeroplane's interphone system, if installed;
- (d) voice or audio signals identifying navigation or approach aids introduced in the headset or speaker; and
- (e) digital communications with ATS, unless recorded by the FDR.

3.1.2 The CARS shall record on two separate channels, or more, at least the following.

- (a) voice communication transmitted from or received in the aeroplane by radio;
- (b) aural environment on the flight deck; and
- (c) voice communication of flight crew members on the flight deck using the aeroplane's interphone system, if installed.

3.1.3 The recorder shall be capable of recording on at least four channels simultaneously. On a tape-based CVR, to ensure accurate time correlation between channels, the recorder shall record in an in-line format. If a bi-directional configuration is used, the in-line format and channel allocation shall be retained in both directions.

3.1.4 The preferred channel allocation shall be as follows—

Channel 1 — co-pilot headphones and live boom microphone;

Channel 2 — pilot headphones and live boom microphone;

Channel 3 — area microphone;

Channel 4 — time reference plus the third and fourth crew members' headphone and live microphone, if applicable.

Note 1.— Channel 1 is located closest to the base of the recording head.

Note 2.— The preferred channel allocation presumes use of current conventional magnetic tape transport mechanisms and is specified because the outer edges of the tape have a higher risk of damage than the middle. It is not intended to preclude use of alternative recording media where such constraints may not apply.

#### 4. AIRBORNE IMAGE RECORDER (AIR) AND AIRBORNE IMAGE RECORDING SYSTEM (AIRS)

##### 4.1 Classes

4.1.1 A Class A AIR or AIRS captures the general cockpit area in order to provide data supplemental to conventional flight recorders.

*Note 1.—To respect crew privacy, the cockpit area view may be designed as far as practical to exclude the head and shoulders of crew members whilst seated in their normal operating position.*

Note 2.— There are no provisions for Class A AIR or AIRS in this document.

4.1.2 A Class B AIR or AIRS captures data link message displays.

4.1.3 A Class C AIR or AIRS captures instruments and control panels.

*Note.— A Class C AIR or AIRS may be considered as a means for recording flight data where it is not practical or is prohibitively expensive to record on an FDR or an ADRS, or where an FDR is not required.*

4.1.4 The AIR or AIRS must start to record prior to the aeroplane moving under its own power and record continuously until the termination of the flight when the aeroplane is no longer capable of moving under its own power. In addition, depending on the availability of electrical power, the AIR or AIRS must start to record as early as possible during the cockpit checks prior to engine start at the beginning of the flight until the cockpit checks immediately following engine shutdown at the end of the flight.

## 5. DATA LINK RECORDER (DLR)

### 5.1 Applications to be recorded

5.1.1 Where the aircraft flight path is authorized or controlled through the use of data link messages, all data link messages, both uplinks (to the aircraft) and downlinks (from the aircraft), shall be recorded on the aircraft. As far as practicable, the time the messages were displayed to the flight crew and the time of the responses shall be recorded.

*Note.— Sufficient information to derive the content of the data link communications message and the time the messages were displayed to the flight crew is needed to determine an accurate sequence of events on board the aircraft.*

5.1.2 Messages applying to the applications listed below shall be recorded. Applications without the asterisk (\*) are mandatory applications which shall be recorded regardless of the system complexity. Applications with an (\*) shall be recorded only as far as is practicable given the architecture of the system.

- (a) Data link initiation capability;
- (b) Controller-pilot data link communications;
- (c) Data link flight information services;
- (d) Automatic dependent surveillance — contract;
- (e) Automatic dependent surveillance — broadcast\*;
- (f) Aeronautical operational control\*.

*Note.— Descriptions of the applications are contained in Table A1.3-2.*

## 6. AIRCRAFT DATA RECORDING SYSTEMS (ADRS)

### 6.1 Parameters to be recorded

ADRS shall be capable of recording, as appropriate to the aeroplane, at least the essential (E) parameters in Table A1.3-3.

### 6.2 Additional information

6.2.1 The measurement range, recording interval and accuracy of parameters on installed equipment is usually verified by methods approved by the appropriate certificating authority.

6.2.2 Documentation concerning parameter allocation, conversion equations, periodic calibration and other serviceability/maintenance information shall be maintained by the operator/owner. The documentation shall be sufficient to ensure that accident investigation authorities have the necessary information to read out the data in engineering units.

## 7. INSPECTIONS OF FLIGHT RECORDER SYSTEMS

7.1 Prior to the first flight of the day, the built-in test features for the flight recorders and flight data acquisition unit (FDAU), when installed, shall be monitored by manual and/or automatic checks.

7.2 FDR systems or ADRS, CVR systems or CARS, and AIR systems or AIRS shall have recording system inspection intervals of one year; subject to the approval from the appropriate regulatory authority, this period may be extended to two years provided these systems have demonstrated a high integrity of serviceability and self-monitoring. DLR systems or DLRS shall have recording system inspection intervals of two years; subject to the approval from the appropriate regulatory authority, this period may be extended to four years provided these systems have demonstrated high integrity of serviceability and self-monitoring.

7.3 Recording system inspections shall be carried out as follows.

- (a) an analysis of the recorded data from the flight recorders shall ensure that the recorder operates correctly for the nominal duration of the recording;
- (b) the analysis of the FDR or ADRS shall evaluate the quality of the recorded data to determine if the bit error rate (including those errors introduced by recorder, the acquisition unit, the source of the data on the aeroplane and by the tools used to extract the data from the recorder) is within acceptable limits and to determine the nature and distribution of the errors;
- (c) a complete flight recording from the FDR or ADRS shall be examined in engineering units to evaluate the validity of all recorded parameters. Particular attention shall be given to parameters from sensors dedicated to the FDR or ADRS. Parameters taken from the aircraft's electrical bus system need not be checked if their serviceability can be detected by other aircraft systems;
- (d) the readout facility shall have the necessary software to accurately convert the recorded values to engineering units and to determine the status of discrete signals;
- (e) an examination of the recorded signal on the CVR or CARS shall be carried out by replay of the CVR or CARS recording. While installed in the aircraft, the CVR or CARS shall record test signals from each aircraft source and from relevant external sources to ensure that all required signals meet intelligibility standards;
- (f) where practicable, during the examination, a sample of in-flight recordings of the CVR or CARS shall be examined for evidence that the intelligibility of the signal is acceptable; and
- (g) an examination of the recorded images on the AIR or AIRS shall be carried out by replay of the AIR or AIRS recording. While installed in the aircraft, the AIR or AIRS shall record test images from each aircraft source and from relevant external sources to ensure that all required images meet recording quality standards.

7.4 A flight recorder system shall be considered unserviceable if there is a significant period of poor quality data, unintelligible signals, or if one or more of the mandatory parameters is not recorded correctly.

7.5 A report of the recording system inspection shall be made available on request to regulatory authorities for monitoring purposes.

7.6 Calibration of the FDR system—

- (a) for those parameters which have sensors dedicated only to the FDR and are not checked by other means, recalibration shall be carried out at least every five years or in accordance with the recommendations of the sensor manufacturer to determine any discrepancies in the engineering conversion routines for the mandatory parameters, and to ensure that parameters are being recorded within the calibration tolerances; and
- (b) when the parameters of altitude and airspeed are provided by sensors that are dedicated to the FDR system, there shall be a recalibration performed as recommended by the sensor manufacturer, or at least every two years.

70\* Hydraulic pressure (each system)

71\* Loss of cabin pressure

72\* Cockpit trim control input position pitch

73\* Cockpit trim control input position roll

74\* Cockpit trim control input position yaw

75 All cockpit flight control input forces (control wheel, control column, rudder pedal)

76\* Event marker

77\* Date

78\* Actual navigation performance or estimated position error or estimated position uncertainty

Full range	2	±5%	100 psi
Discrete	1		
Full range	1	±5%	0.2% of full range or as installed
Full range	1	±5%	0.2% of full range

Full range	1	$\pm 5\%$	or as installed 0.2% of full range or as installed
Full range ( $\pm 311$ N ( $\pm 70$ lbf), $\pm 378$ N ( $\pm 85$ lbf), $\pm 734$ N ( $\pm 165$ lbf))	1	$\pm 5\%$	0.2% of full range or as installed
Discrete	1		
365 days	64		
As installed	4	As installed	

*Note.— The preceding 78 parameters satisfy the requirements for a Type IA FDR.*

*Notes.—*

1.  $V_{so}$  stalling speed or minimum steady flight speed in the landing configuration is in Section "Abbreviations and Symbols".
2.  $V_D$  design diving speed.
3. Refer to sub-regulation 28(1)b, for increased recording requirements.
4. Record sufficient inputs to determine power.
5. For aeroplanes with control systems in which movement of a control surface will back drive the pilot's control, "or" applies. For aeroplanes with control systems in which movement of a control surface will not back drive the pilot's control, "and" applies. In aeroplanes with split surfaces, a suitable combination of inputs is acceptable in lieu of recording each surface separately.
6. If signal available in digital form.
7. Recording of latitude and longitude from INS or other navigation system is a preferred alternative.
8. If signals readily available.

If further recording capacity is available, recording of the following additional information should be considered—

operational information from electronic display systems, such as electronic flight instrument systems (EFIS), electronic centralized aircraft monitor (ECAM) and engine indication and crew alerting system (EICAS). Use the following order of priority—

- (a) parameters selected by the flight crew relating to the desired flight path, e.g. barometric pressure setting, selected altitude, selected airspeed, decision height, and autoflight system engagement and mode indications if not recorded from another source;
- (b) display system selection/status, e.g. SECTOR, PLAN, ROSE, NAV, WXR, COMPOSITE, COPY;
- (c) warnings and alerts;
- (d) the identity of displayed pages for emergency procedures and checklists;

- (e) retardation information including brake application for use in the investigation of landing overruns and rejected take-offs.

Table A1.3-2. Description of applications for data link recorders

Item No.	Application type	Application description	Recording content
1	Data link initiation	This includes any applications used to log on to or initiate data link service. In FANS-1/A and ATN, these are ATS facilities notification (AFN) and context management (CM), respectively.	C
2	Controller-pilot communication	This includes any application used to exchange requests, clearances, instructions and reports between the flight crew and controllers on the ground. In FANS-1/A and ATN, this includes the CPDLC application. It also includes applications used for the exchange of oceanic (OCL) and departure clearances (DCL) as well as data link delivery of taxi clearances.	C
3	Addressed surveillance	This includes any surveillance application in which the ground sets up contracts for delivery of surveillance data. In FANS-1/A and ATN, this includes the automatic dependent surveillance — contract (ADS-C) application. Where parametric data are reported within the message they shall be recorded unless data from the same source are recorded on the FDR.	C
4	Flight information	This includes any service used for delivery of flight information to specific aircraft. This includes, for example, data link aviation weather report service (D-METAR), data link-automatic terminal service (D-ATIS), digital Notice to Airmen (D-NOTAM) and other textual data link services.	C
5	Aircraft broadcast surveillance	This includes elementary and enhanced surveillance systems, as well as automatic dependent surveillance — broadcast (ADS-B) output data. Where parametric data sent by the aeroplane are reported within the message they shall be recorded unless data from	M*

the same source  
are recorded on the FDR.

Item No.	Application type	Application description	Recording content
6	Aeronautical operational control data	This includes any application transmitting or receiving data used for aeronautical operational control purposes (per the ICAO definition of operational control).	M*

Key—

C: Complete contents recorded.

M: Information that enables correlation to any associated records stored separately from the aeroplane.

\*: Applications that are to be recorded only as far as is practicable given the architecture of the system.

Table A1.3-3. Parameter guidance for aircraft data recording systems

No.	Parameter name	Parameter category	Minimum recording range	Maximum recording interval in seconds	Minimum recording accuracy	Minimum recording resolution	Remarks
1	Heading (Magnetic or True)	R*	±180°	1	±2°	0.5°	* If not available, record rates
2	Pitch attitude	E*	±90°	0.25	±2°	0.5°	* If not available, record rates
3	Roll attitude	E*	±180°	0.25	±2°	0.5°	* If not available, record rates
4	Yaw rate	E*	±300°/s	0.25	±1% + drift of 360°/h	2°/s	* Essential if no heading available
5	Pitch rate	E*	±300°/s	0.25	±1% + drift of 360°/h	2°/s	* Essential if no pitch attitude available
6	Roll rate	E*	±300°/s	0.25	±1% + drift	2°/s	* Essential

				of 360°/h		if no roll attitude available	
7	Positioning system: latitude/longitude	E	Latitude: $\pm 90^\circ 2$ Longitude: $\pm 180^\circ$	2 (1 if available)	As installed (0.00015° recommended)	0.00005°	
8	Positioning system estimated error	E*	Available range	2 (1 if available)	As installed	As installed	* If available
9	Positioning system: altitude	E	-300 m (-1 000 ft) to maximum certificated altitude of aircraft + 1 500 m (5 000 ft)	2 (1 if available)	As installed ( $\pm 15$ m ( $\pm 50$ ft) recommended)	1.5 m (5 ft)	
10	Positioning system: time*	E	24 hours	1	$\pm 0.5$ s	0.1 s	* UTC time preferred where available.
11	Positioning system: ground speed	E	0-1 000 kt	2 (1 if available)	As installed ( $\pm 5$ kt recommended)	1 kt	
12	Positioning system: channel	E	0-360°	2 (1 if available)	As installed ( $\pm 2^\circ$ recommended)	0.5°	
13	Normal acceleration	E	-3 g to +6 g (*)	0.25 (0.125 if available)	As installed ( $\pm 0.09$ g excluding a datum error of $\pm 0.45$ g recommended)	0.004 g	
14	Longitudinal acceleration	E	$\pm 1$ g (*)	0.25 (0.125 if available)	As installed ( $\pm 0.015$ g excluding a	0.004 g	

15	Lateral acceleration	E	±1 g (*)	0.25 (0.125 if available)	datum error of ±0.05 g recommended) As installed (±0.015 g excluding a datum error of ±0.05 g recommended) As installed (±0.015 g excluding a datum error of ±0.05 g recommended)	0.004 g
16	External static pressure (or pressure altitude)	R	34.4 mb (3.44 in-Hg) to 310.2 mb (31.02 in-Hg) or available sensor range	1	As installed (±1 mb (0.1 in-Hg) or ±30 m (±100 ft) to ±210 m (±700 ft) recommended)	0.1 mb (0.01 in-Hg) or 1.5 m (5 ft)
17	Outside air temperature (or total air temperature)	R	−50° to +90°C or available sensor range	2	As installed (±2°C recommended)	1°C
18	Indicated air speed	R	As the installed pilot display measuring system or available sensor range	1	As installed (±3% recommended)	1 kt (0.5 kt recommended)
19	Engine RPM	R	Full range including overspeed condition	Each engine each second	As installed	0.2% of full range
20	Engine oil pressure	R	Full range	Each engine each second	As installed (5% of full range recommended)	2% of full range

21	Engine oil temperature	R	Full range	Each engine each second	As installed (5% of full range recommended)	2% of full range	
22	Fuel flow or pressure	R	Full range	Each engine each second	As installed	2% of full range	
23	Manifold pressure	R	Full range	Each engine each second	As installed	0.2% of full range	
24	Engine thrust/power/torque parameters required to determine propulsive thrust/power*	R	Full range	Each engine each second	As installed	0.1% of full range	* Sufficient parameters e.g. EPR/N <sub>1</sub> or torque/Np as appropriate to the particular engine shall be recorded to determine power in both normal and reverse thrust. A margin for possible overspeed should be provided.
25	Engine gas generator speed (Ng)	R	0–150%	Each engine each second	As installed	0.2% of full range	
26	Free power turbine speed (Nf)	R	0–150%	Each engine each second	As installed	0.2% of full range	
27	Coolant temperature	R	Full range	1	As installed (±5°C)	1°C	

28	Main voltage	R	Full range	Each engine each second	recommended) As installed	1 Volt	
29	Cylinder head temperature	R	Full range	Each cylinder each second	As installed	2% of full range	
30	Flaps position	R	Full range or each discrete position	2	As installed	0.5°	
31	Primary flight control surface position	R	Full range	0.25	As installed	0.2% of full range	
32	Fuel quantity	R	Full range	4	As installed	1% of full range	
33	Exhaust gas temperature	R	Full range	Each engine each second	As installed	2% of full range	
34	Emergency voltage	R	Full range	Each engine each second	As installed	1 Volt	
35	Trim surface position	R	Full range or each discrete position	1	As installed	0.3% of full range	
36	Landing gear position	R	Each discrete position*	Each gear every two seconds	As installed		* Where available, record up-and-locked and down-and-locked position
37	Novel/unique aircraft features	R	As required	As required	As required	As required	

## Key:

E: Essential parameters

R: Recommended parameters

## FOURTH Schedule

r. 37(7)&amp;(8)

## Lights To Be Displayed By Aeroplanes

## (a) Terminology

When the following terms are used in this Schedule, they have the following meanings—

- (a) 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.
- (b) 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.
- (c) 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.
- (d) 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.
- (e) Horizontal plane. The plane containing the longitudinal axis and perpendicular to the plane of symmetry of the aeroplane.
- (f) Longitudinal axis of the aeroplane. A selected axis parallel to the direction of flight at a normal cruising speed, and passing through the centre of gravity of the aeroplane.
- (g) 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.
- (h) Under command. An aeroplane on the surface of the water is “under command” when it is able to execute manoeuvres as required by the International Regulations for Preventing Collisions at Sea for the purpose of avoiding other vessels.
- (i) 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.
- (j) Vertical planes. Planes perpendicular to the horizontal plane.
- (k) Visible. Visible on a dark night with a clear atmosphere.

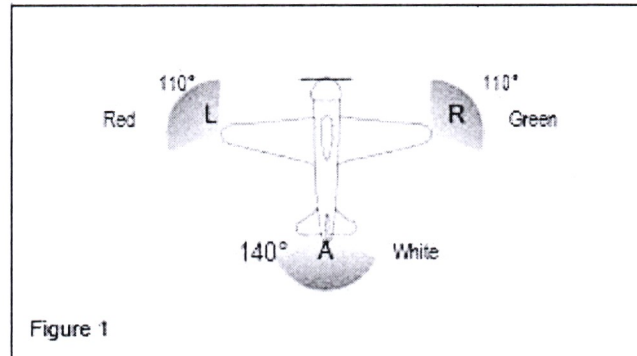
## (b) Navigation Lights To Be Displayed In The Air

*Note.— The lights specified herein are intended to meet the requirements of the Civil Aviation (Rules of the Air) Regulations, for navigation lights.*

As illustrated in Figure 1, the following unobstructed navigation lights shall be displayed—

- (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.



- (c) lights to be displayed on the water

### 3.1. General

*Note.— The lights specified herein are intended to meet the requirements of the Civil Aviation (Rules of the Air) Regulations for lights to be displayed by aeroplanes on the water.*

The International Regulations for Preventing Collisions at Sea require different lights to be displayed in each of the following circumstances—

- (a) when under way;
- (b) when towing another vessel or aeroplane;
- (c) when being towed;
- (d) when not under command and not making way;
- (e) when making way but not under command;
- (f) when at anchor;
- (g) when aground.

The lights required by aeroplanes in each case are described below.

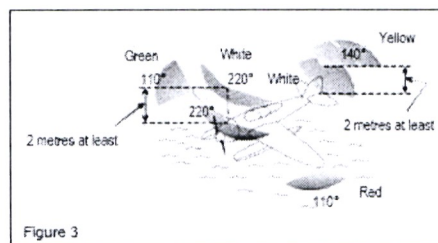
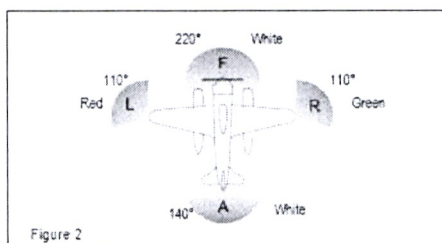
3.2 When under way as illustrated in Figure 2, the following appearing as steady, unobstructed lights—

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

*Note:-The lights described in a), b) and c) should be visible at a distance of at least 3.7 km (2 NM). The light described in d) should be visible at a distance of 9.3 km (5 NM) when fitted to an aeroplane of 20 m or more in length or visible at a distance of 5.6 km (3 NM) when fitted to an aeroplane of less than 20 m in length.*

3.3 When towing another vessel or aeroplane as illustrated in Figure 3, the following appearing as steady, unobstructed lights—

- (a) the lights described in 3.2;
- (b) a second light having the same characteristics as the light described in 3.2 d) and mounted in a vertical line at least 2 m above or below it; and
- (c) a yellow light having otherwise the same characteristics as the light described in 3.2 c) and mounted in a vertical line at least 2 m above it.

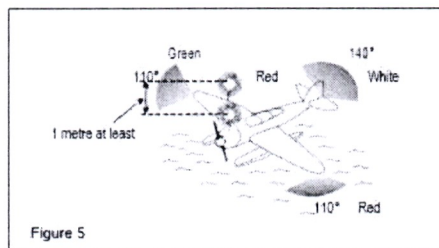
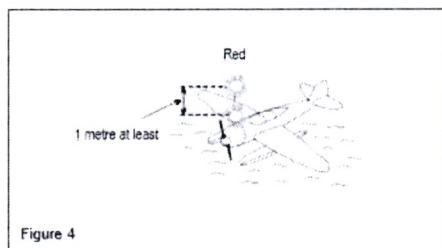


3.4 When being towed the lights described in 3.2 a), b) and c) appearing as steady, unobstructed lights.

3.5 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 (2 NM).

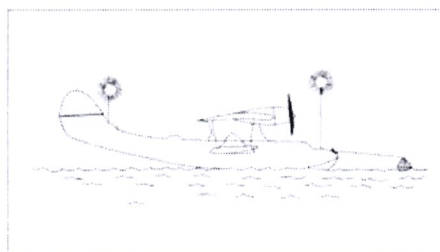
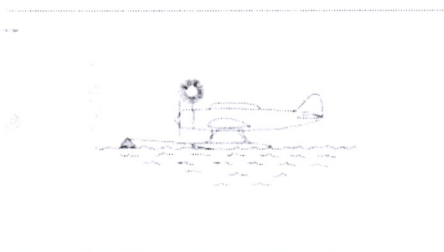
3.6 When making way but not under command as illustrated in Figure 5, the lights described in 3.5 plus the lights described in 3.2 a), b) and c).

*Note.— The display of lights prescribed in 3.5 and 3.6 is to be taken by other aircraft as signals that the aeroplane showing them is not under command and cannot therefore get out of the way. They are not signals of aeroplanes in distress and requiring assistance.*



3.7 When at anchor—

- (a) If less than 50 m in length, where it can best be seen, a steady white light (Figure 6), visible all around the horizon at a distance of at least 3.7 km (2 NM).
- (b) If 50 m or more in length, where they can best be seen, a steady white forward light and a steady white rear light (Figure 7) both visible all around the horizon at a distance of at least 5.6 km (3 NM).



- (c) If 50 m or more in span a steady white light on each side (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).

3.8 When aground

The lights prescribed in 3.7 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.

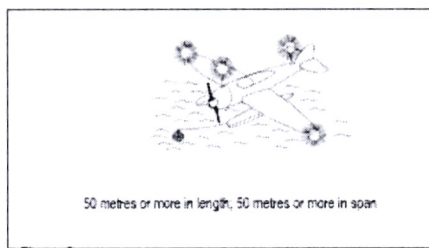
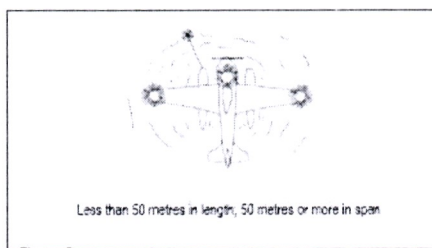


FIGURE 8

FIGURE 9

## FIFTH SCHEDULE

## PENALTIES

(R. 115(2),(3)&amp;(4))

1. Citation	B
2. Interpretation	B
3. Applicability	
4. Compliance with laws, regulations and procedures	B
5. Dangerous goods	A
6. Use of psychoactive substances	A
7. Specific approval	A
8. Operating facilities	B
9. Operational management	B
10. Flight preparation	B
11. In-flight procedures	B
12. Duties of pilot-in-command	B
13. Cabin baggage (take-off and landing)	B
14. Aeroplane performance operating limitations	B
15. Aeroplane instruments, equipment and flight documents	B
16. Aeroplanes on all flights	B
17. Marking of break in points	B
18. All aeroplanes operated as VFR flights	B
19. Aeroplanes on flights over water	B
20. Aeroplanes on flights over designated land areas	B
21. Aeroplanes on high altitude flights	B
22. All aeroplanes operated in accordance with the instrument flight rules	B
23. Aeroplanes when operated at night	B
24. Aeroplanes complying with the noise certification	B
25. Mach number indicator	B
26. Aeroplanes required to be equipped with ground proximity warning systems (GPWS)	B
27. Emergency locator transmitter (ELT)	B
28. Microphones	B
29. Aeroplanes required to be equipped with a pressure-altitude reporting transponder	B

30. Aeroplanes equipped with automatic landing systems, a head-up display (HUD) or equivalent displays, enhanced vision systems (EVS), synthetic vision systems (SVS) and/or combined vision systems (CVS)	B
31. Flight recorders and aircraft data recording systems	B
32. Cockpit voice recorders and cockpit audio recording systems	B
33. Data link recorders	B
34. Flight recorders general	B
35. Electronic flight bags (EFBs)	B
36. Communication equipment	B
37. Navigation equipment	B
38. Surveillance equipment	B
39. Owner's maintenance responsibilities	B
40. Maintenance records	B
41. Modifications and repairs	B
42. Certificate of release to service	B
43. Composition of the flight crew	B
44. Qualifications	B
45. Flight manual	B
46. Journey log book	B
47. Records of emergency and survival equipment carried	B
48. Security of aeroplanes	B
49. Reporting acts of unlawful interference	B
50. Applicability	B
51. Compliance with laws, regulations and procedures	B
52. Safety management	B
53. Operating Facilities	B
54. Operational management	B
55. Flight preparation	B
56. In-Flight Procedures	B
57. Duties of pilot-in-command	B
58. Cabin baggage (take-off and landing)	B
59. Applicable to aeroplanes over 5 700 kg certificated on or after 13 June 1960	B
60. Mass limitations take off	B
61. General	B

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62. Aeroplanes on all flights	B
63. Flight data recorders	B
64. Cockpit Voice Recorders	B
65. Aeroplanes on long-range over-water flights	B
66. Aeroplanes in icing conditions	B
67. Aeroplanes operated in accordance with the instrument flight rules	B
68. Emergency power supply for electrically operated attitude indicating instruments	B
69. Pressurized aeroplanes when carrying passengers — weather-detecting equipment	B
70. Aeroplanes carrying passengers — cabin crew seats	B
71. Aeroplanes required to be equipped with an airborne collision avoidance system (ACAS)	A
72. Aeroplanes required to be equipped with a pressure-altitude reporting transponder	A
73. Communication equipment	B
74. Installation	B
75. Electronic navigation data management	B
76. Operator's maintenance responsibilities	A
77. Operator's maintenance control manual	B
78. Maintenance programme	B
79. Continuing airworthiness information	B
80. Certificate of release to service	A
81. Composition of the flight crew	B
82. Flight crew member emergency duties	B
83. Flight crew member training programmes	B
84. Qualifications	B
85. Flight Operations Officer/Flight Dispatcher	B
86. Operator's maintenance control manual	B
87. Maintenance Programme	B
88. Flight recorder records	B
89. Assignment of emergency duties	B
90. Cabin crew at emergency evacuation stations	B
91. Protection of cabin crew during flight	B
ing	B

93. Reporting acts of unlawful interference	B
94. Security programme	B
95. Requirements for Application.	B
96. Substance of the request for exemption.	B
97. Initial review by the Authority.	B
98. Evaluation of the request.	B
99. Possession of the licence.	B
100. Drug and alcohol testing and reporting.	B
101. Inspection of licences and certificates.	B
102. Change of Name	B
103. Change of Address.	B
104. Replacement of documents.	B
105. Certificate Suspension and Revocations.	B
106. Use and retention of documents and records.	B
107. Reports of violation.	B
108. Enforcement of directions.	B
109. Aeronautical user fees.	B
110. Application of regulations to Government and visiting forces, etc.	B
111. Extra-territorial application of Regulations	B
112. Flight over any foreign country.	B

Dated the 24th April, 2018.

JAMES MACHARIA,  
*Cabinet Secretary for Transport,  
Infrastructure, Housing and Urban Development.*